The OIL WEEKLY

A Journal for
Oil and Gas Producers and Field Men

July 10, 1925 — 10 Cents A Copy

HUGHES "ACME" TOOL JOINT THREADS —

DO NOT
GALL or FREEZE

—they have the strength to withstand greater abuse without deformation.

—scientific heat treatment assures correct hardness.

—careful workmanship plus close inspection maintain the Hughes standard of perfection in the finished product.

At your supply store

Hughes Tool Company

Branch Plants	*Main Office and Plant*	*Export Office*
Los Angeles, Calif.	HOUSTON	New York City
Oklahoma City, Okla.	TEXAS	N. Y.

THERE are Superior Derricks in the field that have drilled TEN WELLS without any repair cost and that have drilled seven holes with the same crown Sheave.

For complete information write to nearest Office.

SUPERIOR TUBE COMPANY

301 Security Bldg., Kansas City, Mo.
1208 Chamber of Commerce Bldg., Pittsburgh, Pa.
416 First National Bank Bldg., Tulsa, Okla.
1208 Santa Fe Bldg., Dallas, Texas.
336 West Bldg., Houston, Texas.
1442 Syndicate Trust Bldg., St. Louis, Mo.

Steel Derricks **Line Pipe**

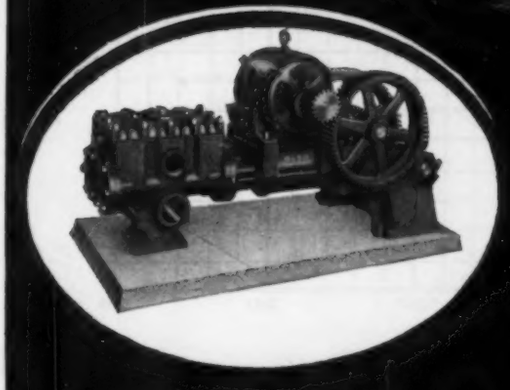
STEEL SUPERIOR DERRICK

Casing **Tubing**

"Ask the Driller Who Has Used One"

THE OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 1716 Dallas Ave., Houston, Texas. Subscription price $1.00 per year; 10 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.

HEADQUARTERS for Motorized Pumps



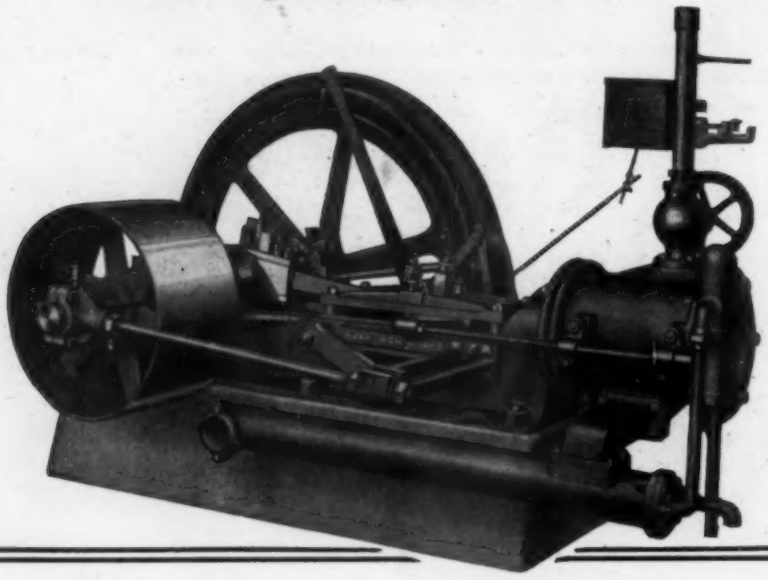
The growing trend toward electrification of pumping equipment is reflected in the constantly increasing demand for Gaso Motorized Pumps. The Midwest Refining Co., Manhattan Pipe Line Co., Humble Pipe Line Co., Mutual Oil Co., Shaffer Oil & Refining Co. and Pierce Petroleum Co. are a few of those we have recently served in this connection. Having made a thorough study of motor-driven pumps, we know the conditions that have to be met.

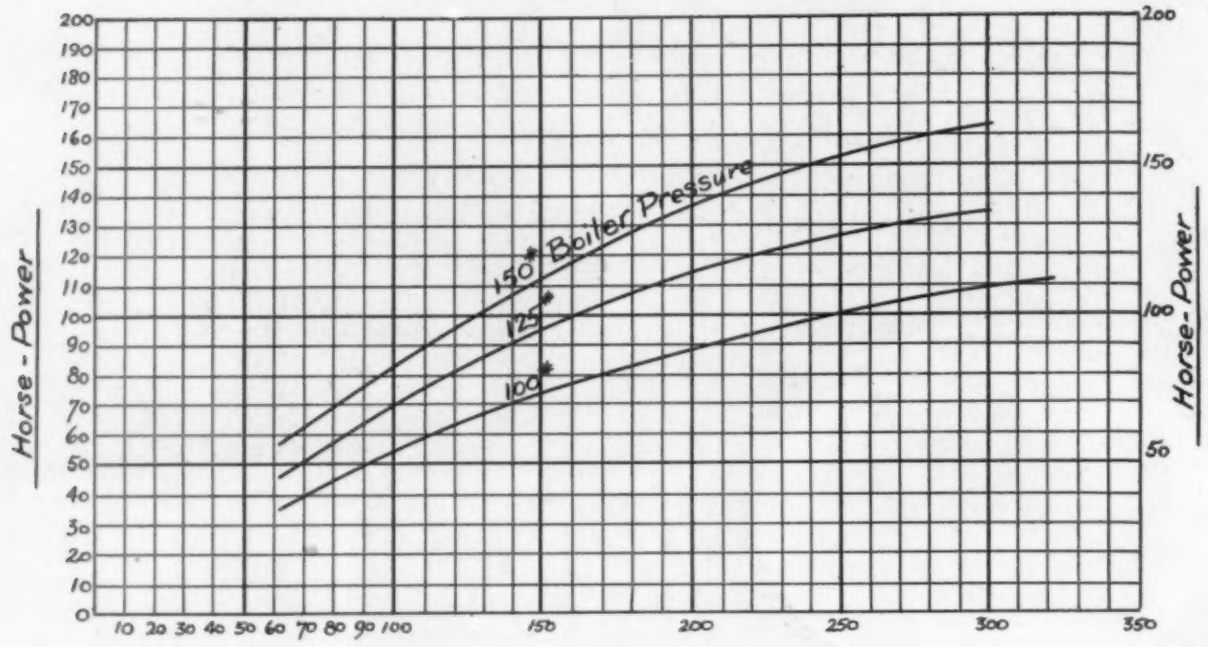
Write for prices and details of electrically operated pump equipment.

GASO PUMP & BURNER MFG. CO. • *Tulsa, Okla.*

GASO PUMPS

Insist on genuine Ajax Replacement Parts. They maintain original engine value.





AJAX STEAM

Say you saw it in The Oil Weekly

AJAX ENGINES
Reg. U. S. Pat. Off.

Power

A 12x12 Ajax Engine Develops 164 Horse Power at 300 R. P. M.—150 lbs. Boiler Pressure—

At 125 lbs. Boiler Pressure It Develops 135 H. P. and at 100 lbs. It Develops 108 H. P.

The graph which illustrates this advertisement is a record of a dynamometer test made April 18, 1925. Engine No. 23404 was taken from stock and equipped with regular flywheel center and First Balance Rim. Steam pipe 2½" diameter. Length of steam pipe from boiler to throttle, 50 ft. Throttle valve wide open at all readings.

—The Ajax Engine sets the standard of the Oil Fields.

Made by
AJAX IRON WORKS
Corry, Pa.

Distributed by
NATIONAL SUPPLY COMPANIES
In every oil field

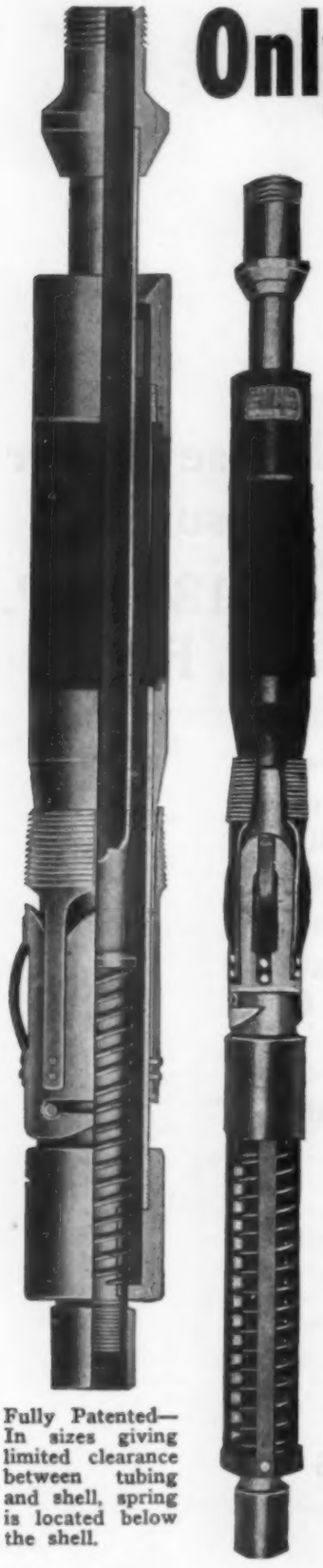
34128

DRILLING ENGINES

Say you saw it in The Oil Weekly

Only ¼ of Oil Brot to Surface

under present production methods —says Bureau of Mines



Fully Patented—In sizes giving limited clearance between tubing and shell, spring is located below the shell.

Think of the enormous fortunes made in oil—fortunes which have excited the entire speculating public—and then reflect that they might have been 4 times as large and created 4 times as much excitement did we but understand how to get ALL the oil from the wells.

When we recognize that due to imperfect methods of production, we are taking only one-quarter of the liquid ore from these "gold mines", can we sensibly omit to study and improve upon present methods of production?

GUIBERSON has been for some time preaching the gospel of flowing wells through tubing. Failure to do this is one of the most obvious and foolhardy faults of present practice. Where wells are flowed through casing valuable gas pressure is permitted to escape unhindered, bringing with it a MINIMUM quantity of the oil. Flowing through the tubing puts this valuable pressure "in harness."

THE GUIBERSON Control Head Packer and Tubing Oil Saver constitute a "team" in a class by themselves, for packing flowing wells and confining flow to a scientifically placed string of tubing.

GUIBERSON representatives are authorities on this important subject. Consult them.

"Better Be Safe Than Sorry"

THE GUIBERSON CORPORATION

Box 1106, Dallas, Texas

CALIFORNIA BRANCH: 1506 Santa Fe Ave., Los Angeles

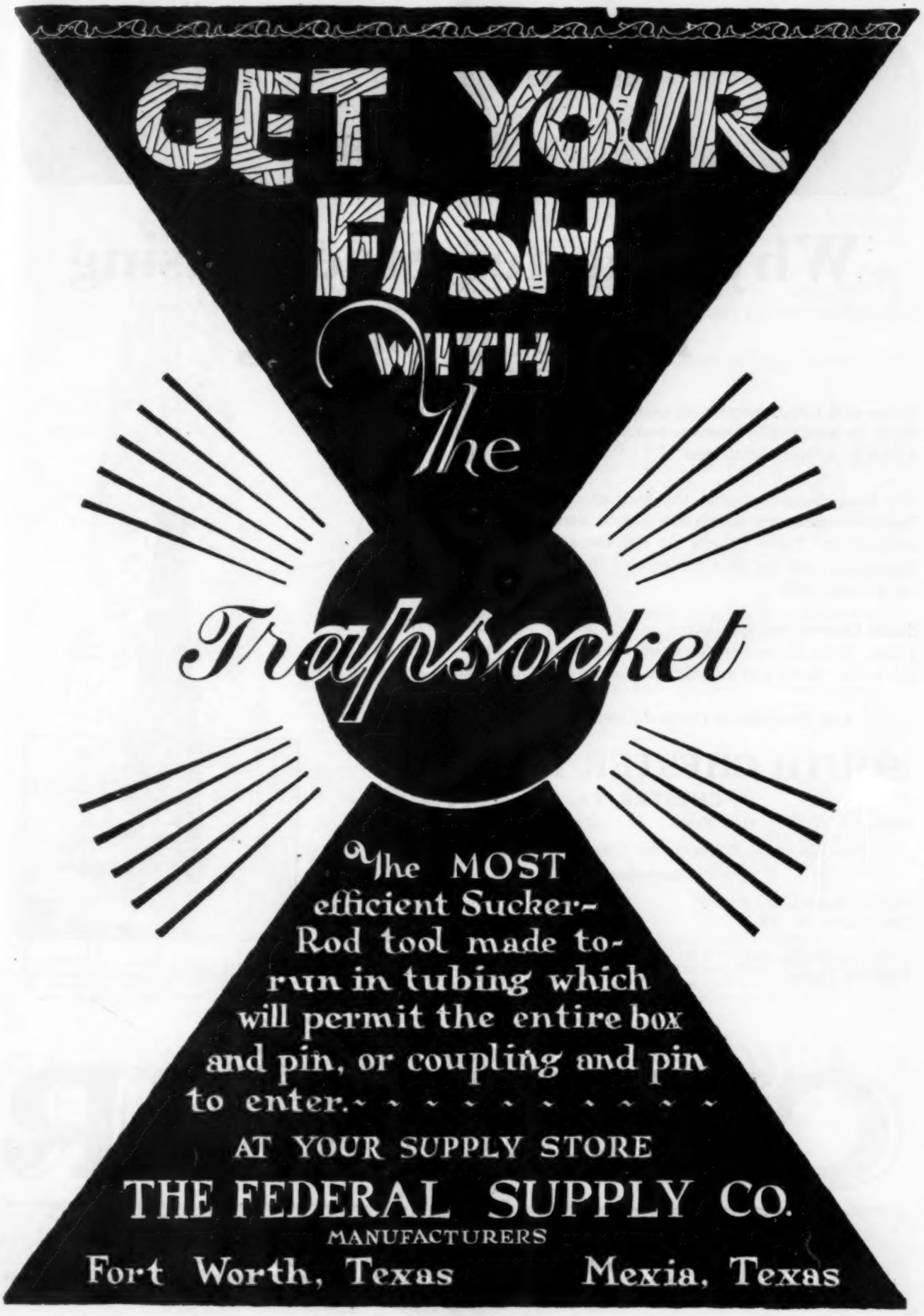
402 W. First St., TULSA

318 First Nat. Bank Bldg., HOUSTON

506 Trust Bldg., NEWARK, O.

GUIBERSON

BETTER BE SAFE THAN SORRY



Say you saw it in The Oil Weekly

Why Chester Steel Casing Is Good Casing

In the test and inspection of casing the common practice is to finish up with the hydrostatic test. Chester Casing is inspected AFTER the hydrostatic test.

We have discovered that the hydrostatic test will sometimes develop weaknesses which can not be detected in previous examinations. These defects are not sufficient to burst the pipe during the test, but may be detected by inspection and ARE in the Chester mill.

South Chester has specialized on oil country pipe for years and years. It has specialized on casing in particular. It knows what the driller needs and supplies it—for no greater price.

Our Distributors Carry a Complete Range of Stock

SOUTH CHESTER TUBE CO.

CHESTER, PA.

Pittsburgh New York Tulsa Los Angeles

Also Makers of Wrought Iron Casing from 4½" to 12½"

Distributors:

Prichard Supply Co.,
Mannington, W. Va.

Hillman-Cooney, Inc.,
1118 Santa Fe Ave.,
Los Angeles, Cal.

Petroleum Supply Co.,
Houston, Texas

Wagner Supply Co.,
Fort Worth, Texas.

Warehouses at
Houston, Texas;
Thenard and Taft, Calif.

Globe Oil Corp. Well No. 3 at Huntington Beach, Calif., in which 3800 feet 8¼" 36-lb. 8thd and 5052 feet 4¾" 15-lb. 10 thd. of Chester Steel Casing is used.

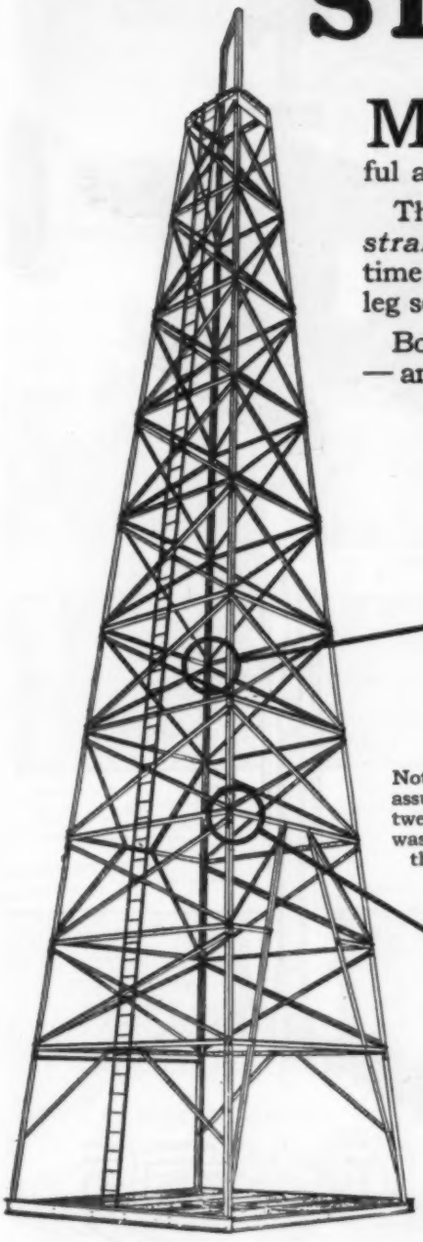
CHESTER

STEEL CASING

SPECIALISTS IN CASING FOR DEEP WELL DRILLING

Say you saw it in The Oil Weekly

PARKERSBURG STEEL DERRICKS



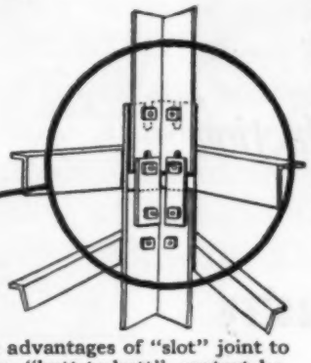
MUCH of the exceptional strength and rigidity of Parkersburg Steel Derricks are due to the "slotted" joint — proved successful and perfected during *sixteen years of actual oilfield service.*

There are no shearing strains on the bolts — loads are carried *straight* down the derrick legs. The derrick settles completely at time of erection. There's a "butt-to-butt" contact between adjoining leg sections.

Bolts and nuts need never be removed for dismantling or re-erecting — another feature of the "slotted" joint!

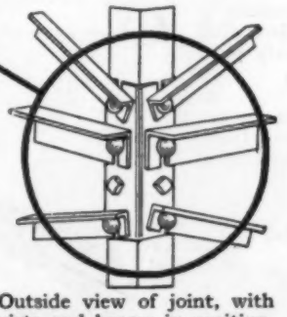
When derrick is first erected, bolts are inserted and nuts started by the "ground" man. Men in the rig merely place the derrick members and tighten the nuts — there's no time lost inserting bolts and starting nuts while holding the derrick members in place.

"It's the stiffest derrick on the market!" is the opinion of veteran rig builders after they've tried to shake it from the top section, the severest test for a newly-erected derrick!

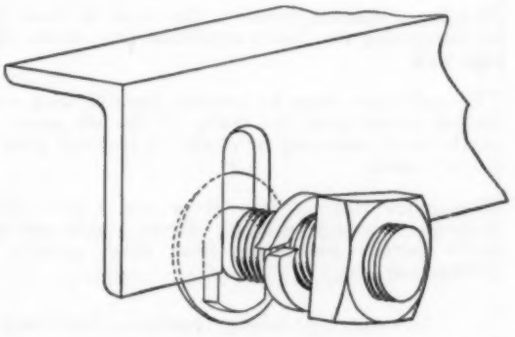


Note advantages of "slot" joint to assure "butt-to-butt" contact between leg sections. Positive lock washer with each bolt — you tighten the nut, and the joint is secure

Specifications are yours for the asking



Outside view of joint, with girts and braces in position. The square-headed bolts are "shop-bolts"



The "one-wrench" bolt is another feature of Parkersburg Steel Derricks. The slot fits over the lug under the bolt head. The bolt cannot turn — tightening nuts on a Parkersburg Derrick is a "one-wrench" job!

The PARKERSBURG RIG & REEL COMPANY

Main Office and Works, Parkersburg, W. Va. ***New York Office,*** 30 Church St.

California Representatives, BUCK & STODDARD
485 California St., San Francisco, Calif.; Box 720 Arcade Station, Los Angeles, Calif.

District Offices and Distributing Warehouses from which Parkersburg Service is available

TEXAS
*Houston
Best
Breckenridge
Corsicana
Liberty
Luling
Olney
Orange
Panhandle
Ranger
Vernon
Wichita Falls

WYOMING
*Casper
‡Rawlins

LOUISIANA
*Shreveport
Cotton Valley
West Lake

KANSAS
Eldorado
Madison
Winfield

WEST VIRGINIA
Parkersburg
Clarksburg

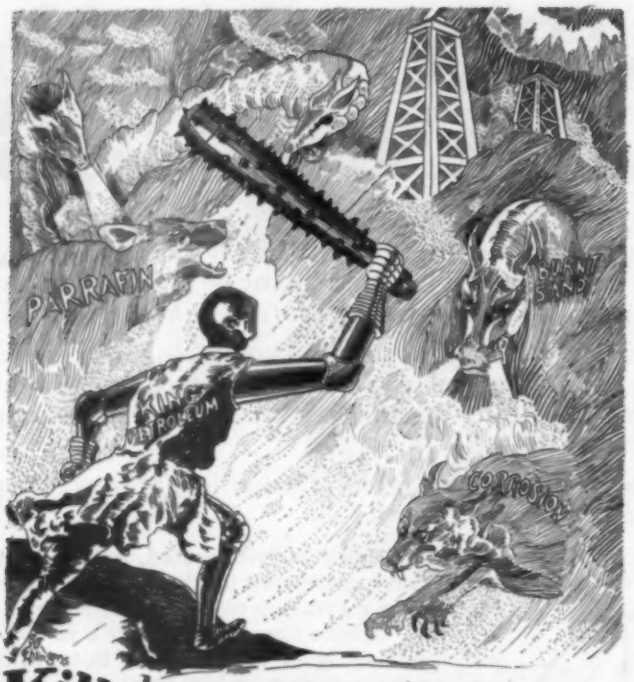
OKLAHOMA
*Tulsa
Bristow
Drumright
Holdenville
Hominy
Okemah
Pawnee
Wetumka
Tonkawa
Wilson
Shidler
Stroud
Wewoka

ARKANSAS
*El Dorado
Louann
Smackover
McNeil

COLORADO
Denver

*District Offices ‡Frick-Reid Supply Co.

Say you saw it in The Oil Weekly



Kill the enemies of production

With the battle club of the industry

The Jones Reamer removes the cause of these evils thereby correcting the faulty condition that exists in the average well.

The only sure way to remove paraffin and corrosion is to cut them from the walls of the oil sand. So-called methods of steaming or chemical treating give only temporary relief.

The Jones Reamer also gives you 3 to 4 times larger seepage area in your sand. Gives you a new clean fresh wall, thereby permitting freer flow, greatly increasing production.

Operates on tubing from any well—any depth.

Run with standard rig, any make of clean-out machine or tractor.

Will cut any sand at rate of 1 to 1½ ft. per hour.

A hundred pound reamer arm revolving strikes a hundred blows a minute—no wonder it cuts oil sand! Cutting points easily replaced.

No strain on tubing—Any one can operate—Eliminates sand troubles.

"The Harvester of the Oil Fields"

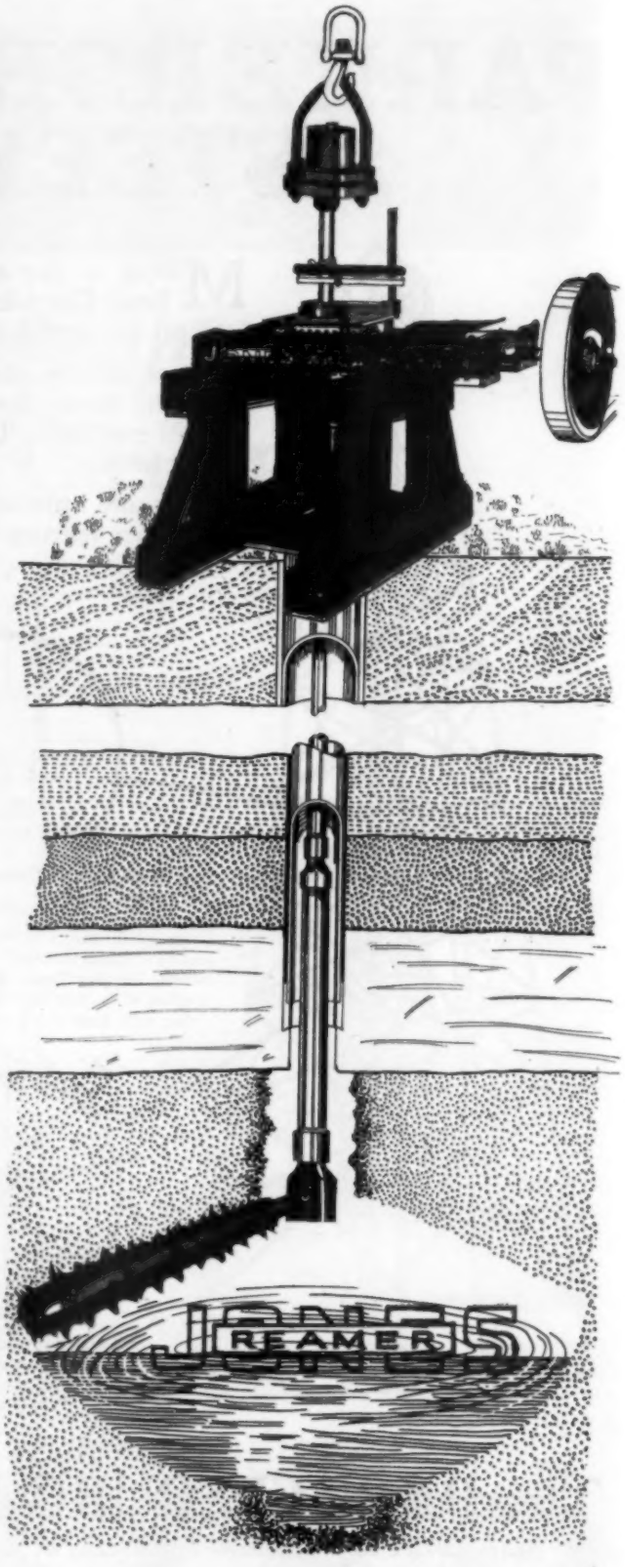
A Sand Reamer Not an Under Reamer

In Use by Successful Companies Everywhere

JONES OIL WELL REAMER CO.

TULSA, OKLA., U. S. A.

CASPER, WYO. WICHITA FALLS, TEXAS



Send Coupon Now

JONES OIL WELL REAMER CO.
TULSA, OKLA.

Please send me your folder "When Science Takes a Whirl at an Oil Well."

Name .....

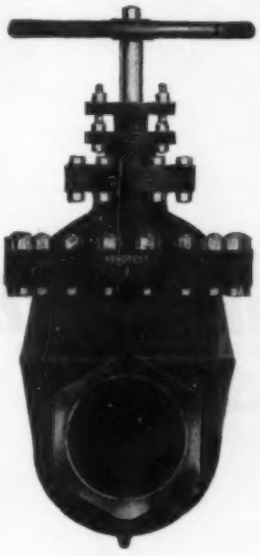
Company .....

City ..... State .....

O. W. 7-10-25

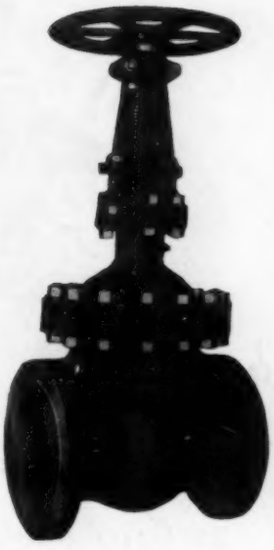
Say you saw it in The Oil Weekly

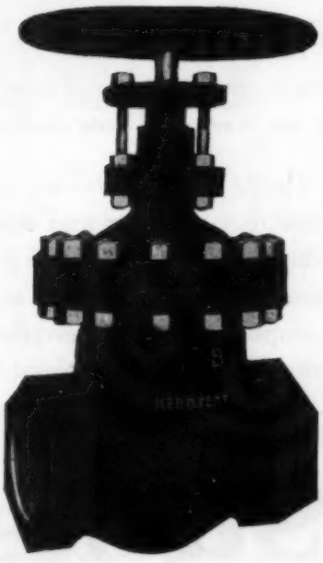
Take the Puzzle Out of "Cross" Words—Stop the Gushers With KEROTEST VALVES



Why gamble with inferior makes, when KEROTEST Valves and Fittings assure safety?

They are made of "ILMENITE" steel, kerosene tested and are easy to install. Thus the element of chance is entirely eliminated. Better be safe than sorry. Specify KEROTEST!





KEROTEST Valves are made for every size of pipe or casing.

Write for descriptive matter today. It will solve your problems.

Pittsburgh Reinforced Brazing and Machine Co.

Pittsburgh, Penna.

Carried in stock and sold by

GRINNELL COMPANY OF THE PACIFIC
Los Angeles San Francisco

OIL WELL SUPPLY COMPANY
Oklahoma Kansas Colorado Wyoming

NORVELL-WILDER HARDWARE COMPANY
Houston Beaumont Shreveport Pittsburgh

Export Distributors
OIL WELL SUPPLY COMPANY
New York Tampico London

Say you saw it in The Oil Weekly

"Remember the Maine!"

IF YOU'RE NOT USING JONES RODS YOU'RE NOT USING THE BEST

That was the battle cry that rang through the land twenty-seven years ago—and how everybody hated Spain—how bitter we were and how dashing our boys that went over.

That's over now—we remember it but vaguely—it made some men famous and some infamous but they're gone too—but, even then JONES SUCKER RODS were the oil man's choice—they were then as today the best Sucker Rod made—improved and strengthened to meet deeper and deeper pumping—they represent the finest Rods that can be made.

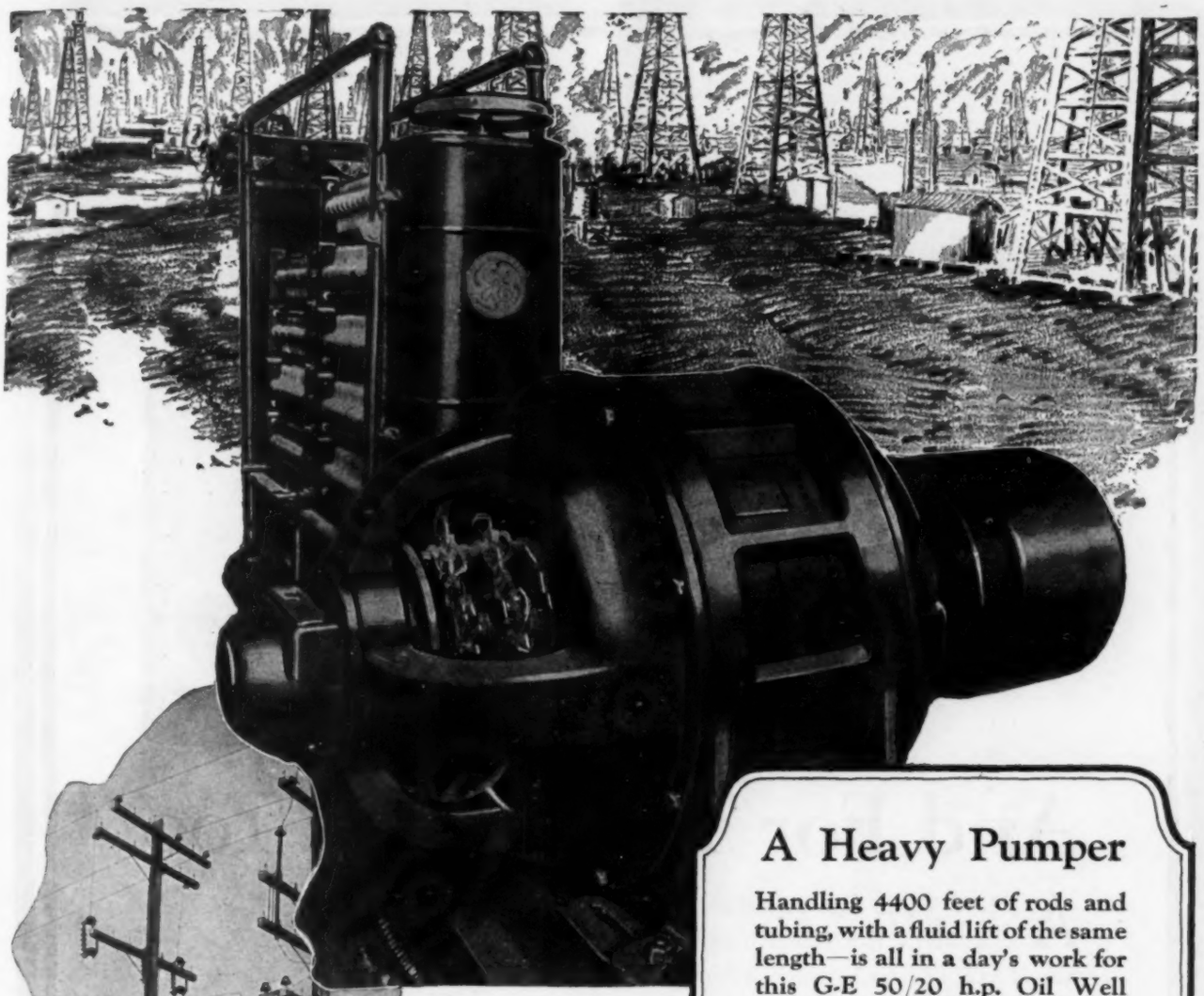
Jones Sucker Rods

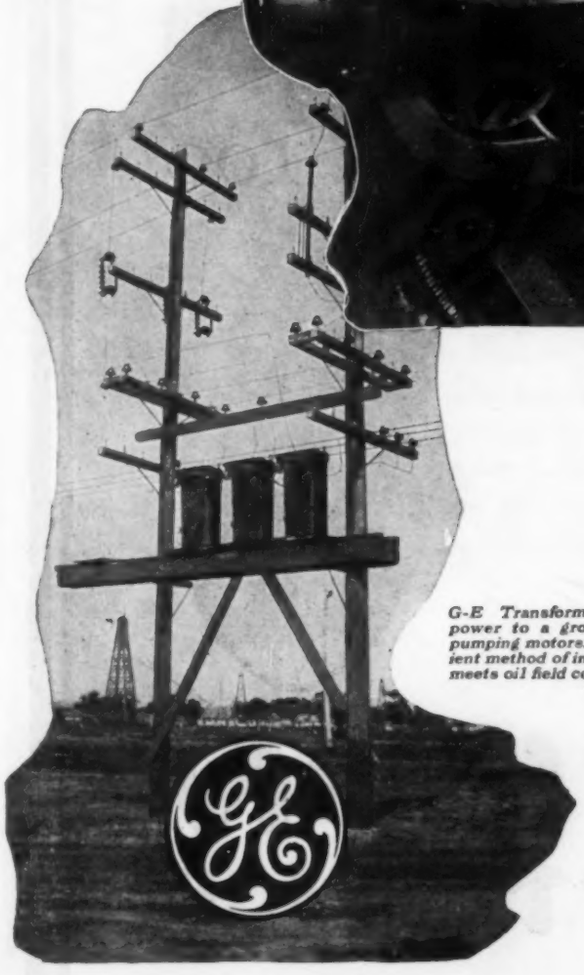
The S. M. JONES Co. Toledo, Ohio.

"The Largest Manufacturers of Sucker Rods in the World"

Mid-Continent Office: 601 Wright Bldg., Tulsa, Okla.

Say you saw it in The Oil Weekly





G-E Transformers supplying power to a group of oil well pumping motors. This convenient method of installation fully meets oil field conditions.

A Heavy Pumper

Handling 4400 feet of rods and tubing, with a fluid lift of the same length—is all in a day's work for this G-E 50/20 h.p. Oil Well Motor. It is operating on the Humble Oil and Refining Company's lease at Goose Creek, Tex.

Throughout the oil fields, G-E Oil Well Motors consistently show low cost drilling and most efficient pumping, pulling and cleaning. G-E standard motors are also widely used for driving water pumps, gathering and line pumps, vacuum pumps and compressors.

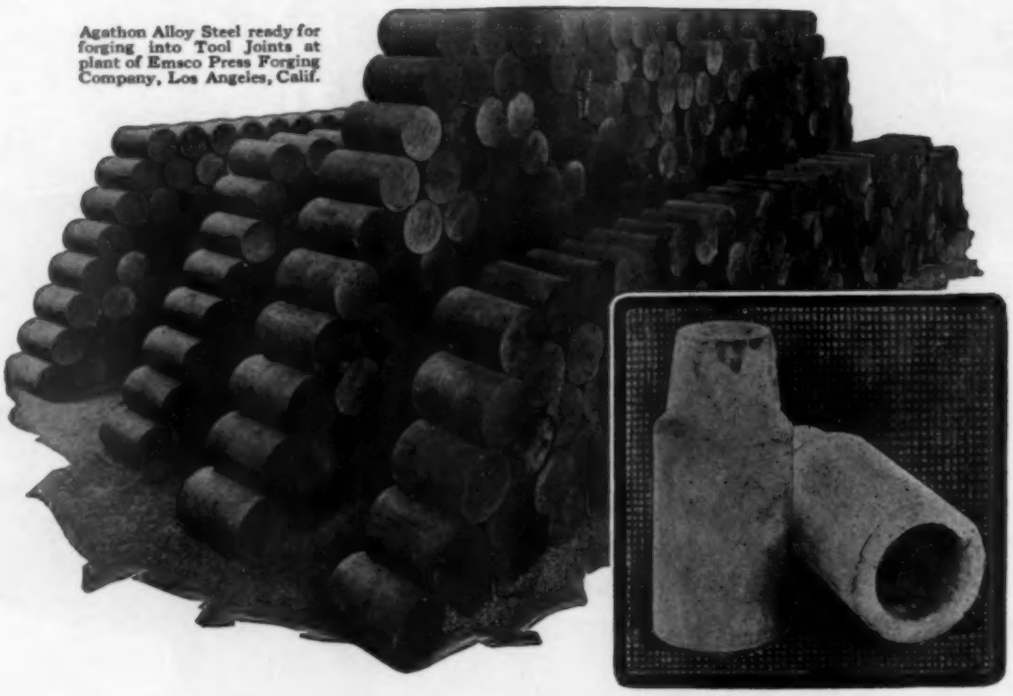
G-E oil field specialists and service at Dallas, Denver, Houston, Kansas City, Oklahoma City, Tulsa, Los Angeles, San Francisco.

7A-68

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN ALL LARGE CITIES

Say you saw it in The Oil Weekly



Agathon Alloy Steel ready for forging into Tool Joints at plant of Emsco Press Forging Company, Los Angeles, Calif.

And For Tool Joints, Too

A FEW years ago Agathon Alloy Steels were little known in the oil-drilling industry. Finally these tough, super-steels were adopted for drill bits. Their highly successful performance in this service has resulted in their general adoption for Tool Joints, Jars and other parts of oil-drilling equipment subjected to great wear, stress or strain. If you are not acquainted with Agathon Alloy Steels, send for our interesting booklet. If you have a steel problem, our metallurgists will help you solve it free of charge. Write us.

ACATHON STEELS

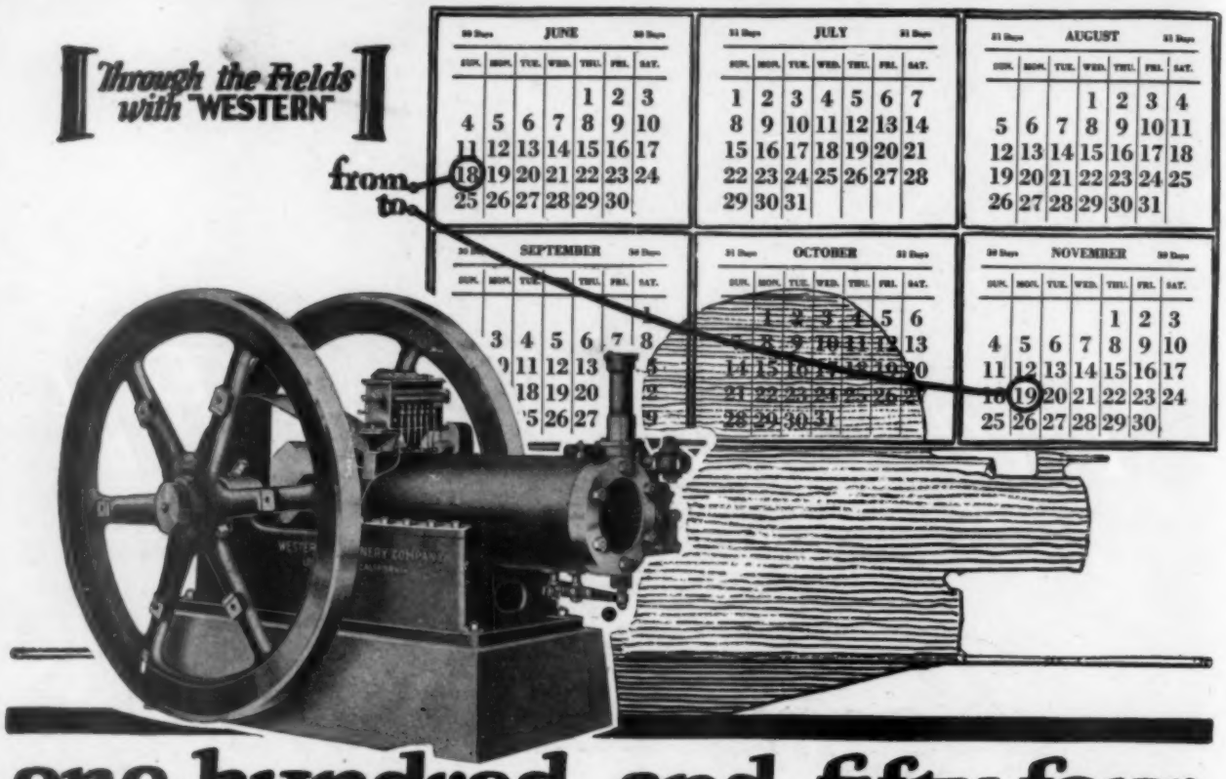
THE CENTRAL STEEL COMPANY, Massillon, Ohio

Swetland Bldg., Cleveland
Aeolian Bldg., New York
Book Bldg., Detroit
University Block, Syracuse
Peoples Gas Bldg., Chicago
Widener Bldg., Philadelphia

AGATHON ALLOY STEELS

The Only Rock Bit
with

Through the Fields with "WESTERN"



one hundred and fifty four 24-hour days of . . . . . continuous operation!

Not an extraordinary record for "Western", but a good one. We've actual records of others operating six months, and a year, and more, without shutting down; but this little 40 HP. unit happens to be next on our tour, and we're not ashamed of its record. . . . . We've known others who were proud of an engine running continuously for only a couple of weeks, and we feel the same worthy pride in our little forty. . . . . It merely goes to show that "Western" Engines are "there" when there's work to be done—and that's the time you will appreciate them. . . . . If you need an engine for oil country work, investigate "Western".

WESTERN MACHINERY COMPANY

Western Machinery Company

General Offices & Factory: 905 North Main St.,
LOS ANGELES, CALIFORNIA

San Francisco Offices & Factory: Eighteenth and Alabama Sts.

720 So. Kenosha St., Tulsa, Oklahoma

1106 Nineteenth St., Bakersfield, California

Say you saw it in The Oil Weekly

35,000 Barrels a Day!

This Moore Driller on Murphy No. 4 at Smackover, brought in 35,000 barrels at 2,400 feet.

Over 300 Moore Derricks Mirrored in a Flood of Oil

AT Smackover, Arkansas, in the most sensational of recent oil strikes, the use of Moore derrick has again been attended with spectacular success. Already an army of over 300 Moore drillers have invaded this field, playing a leading role in the production of over 300,000 barrels per day. With such tremendous values at stake, oil operators immediately and without hesitation, called insistently for Moore derricks, and more of them. No derrick they might have used, could have offered so good an insurance of speed with safety. And they were not disappointed. Repeatedly, the enormous pressure of the flood of oil, produced "cratering" or caving in of the earth surface, reducing many derricks to a tangled heap of wreckage. In several such instances, where the earth surface caved in, the Moore derricks, though listing perilously, were successfully salvaged.

LEE C. MOORE & CO., Inc.
Pittsburgh, Pa.

Established 1907

CASPER, WYO. Midwest Building
DALLAS, TEXAS Magnolia Building
TULSA, OKLA. Atlas Life Building
SHREVEPORT, LA. 824 Prospect Avenue
PARKERSBURG, W. VA. Union Trust Building

CALIFORNIA REPRESENTATIVES—BUCK & STODDARD
SAN FRANCISCO 485 California Street
LOS ANGELES 3354 E. Slauson Avenue; Box 720 Arcade Station

MOORE TUBULAR STEEL DERRICKS

Are You Interested in Reducing Expense of Drilling Oil Wells?

Then why continue with obsolete machinery when everybody who has used

The Standard Collapsible Rotary Drill and Core Barrel

emphatically state that they have lessened their expenses from 25 to 40 per cent and also had the satisfaction of procuring a perfect core every few feet without appreciable loss of time?

These statements can be verified by consulting any of the several parties now using The Standard Collapsible Rotary Drill and Core Barrel.

Write for Literature

Manufactured by

O. M. CARTER

W. T. HILTPOLD, *Sales Agent*

206-7-8 Scanlan Building • HOUSTON, TEXAS

Trouble Proof

All working mechanism of the Smith Separator is on the outside,—in plain sight.

At no time is it necessary to take the Smith out of service to replace any part of the mechanism.

The outside device, controlling the discharge of oil and gas, is found exclusively on the Smith Separator—a feature that will instantly appeal to every operator.

It is a real trouble proof piece of equipment. Thousands of users will testify to this fact.

It is simple in design—perfect in performance—profitable wherever used.

Let us prove its superiority.

Made in the following sizes:

No. 10 Capacity 25,000 bbls. oil, 100 million cu. ft. of gas.
No. 1 Capacity 5,000 bbls. oil and 10 million cu. ft. of gas.
No. 2 Capacity 2,000 bbls. oil, 5 million cu. ft. of gas.
No. 3 Capacity 5,000 bbls. oil, 1 million cu. ft. of gas.
Special Types to Meet Unusual Conditions.

SMITH SEPARATOR COMPANY

Chestnut & Smith Corp. Bldg.
TULSA, OKLA.
Telephone 6221

New York Office
Export Representative:
Oil Field Equipment Co.
30 Church St., New York
Cable Address: "Oilfield" N. Y.

California Office:
2041 E. 38th St.,
Los Angeles, California

Texas Office:
5400 Columbia Ave., Dallas, Texas

London Office:
Perkins & MacIntosh
Petroleum Tool & Boring Co., Ltd.
25 Bishopsgate
Cable Address: "Oleborers"
London

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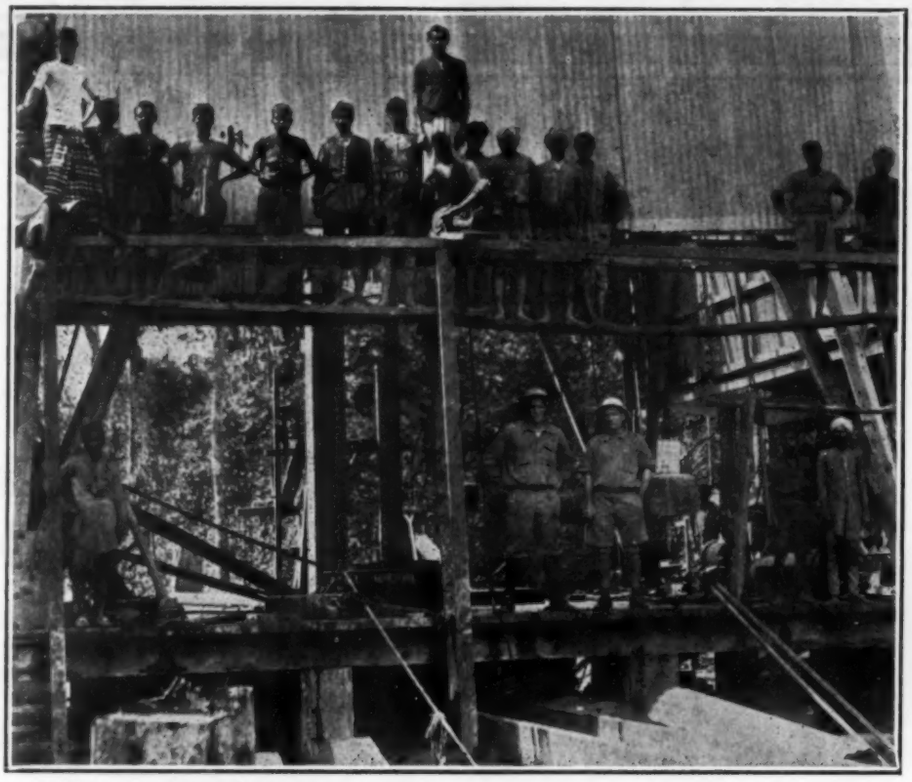

—Photo Courtesy L. E. Davison.

With the Assam Oil Company in Upper India

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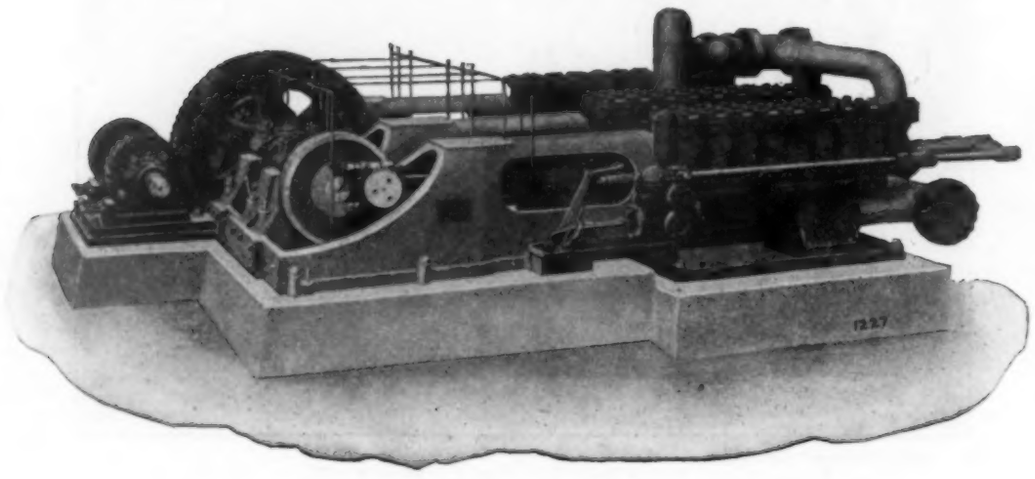
Thoughts



We see a large triplex pipe line pump working steadily and easily—almost lazily—with but one man in evidence only part of the time. He feels a few bearings, looks into a few sight-feed oilers, and goes out seemingly unconcerned.

We are awed by the very silence of so much power.

Through the firewall, we hear the dull muffled exhaust of the oil engine and we remember the impressive fact that a modern oil engine pumping outfit will use only about a barrel of fuel oil in pumping 2300 barrels through high pressure systems.

And then our mind takes us back to the pioneer oil days in Pennsylvania of sweating horses, swearing teamsters—all laboring through the mud—to deliver five barrels of crude oil to a refinery but five miles away.

By wagon transportation then it cost $1.00 a barrel for ONE MILE, while the rate now by pipe lines, even with the low valuation of the dollar, is $1.00 a barrel for ABOUT 1700 MILES.

Low cost transportation by pipe lines was the salvation of the oil industry, and this company is proud of its work in developing and furnishing special pumps and equipment for such an essential part of the industry.

NATIONAL TRANSIT
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Market Strength Shown in Premiums and Small Price Advances

Contrasted with year ago when proration was begun; gasoline off but fuel better

By J. Kent Ridley,
Staff Representative

PERHAPS we are learning.

Contrasted with a year ago the crude oil market is in a decidedly better position, and best of all it is apparent that the producers are more amenable to reason, if we are to accept the figures on new wells in Oklahoma as a criterion. At this time in 1924 the larger purchasers in the Mid-Continent had inaugurated fifty per cent proration and crude cuts of 25 and 50 cents were being announced generally, and with no apparent effect upon the volume of field work. This year the Prairie Oil and Gas Company only mentioned the fact that too much oil could not be handled and a marked effect on the number of new wells was immediately noticeable.

And in further contrast to a year ago, the only changes in prices announced for the week affect two fields in the east, both being small advances.

The official government report on gasoline production and consumption for May shows that that month set a new record in both, and that the stocks on hand as of June 1 represented 61 days' supply of motor fuel at current rates. This is the same supply visible at the beginning of the previous month.

However the expected result of the double holiday of Independence Day did not become immediately reflected in demands from domestic jobbers and a slack in export demand has assisted in slightly weakening the gasoline market. However the refiners in the middle section are benefitting from a better demand for fuel oil and cracking stock following the downward trend of the Smackover flush. Weakness of both fuel oil and natural gas gasoline in California is a reflection of the fact that cracking is of negligible proportions on the West Coast.

Less Aggressive

In California and in North Texas crude purchasers are reported as being less anxious to secure connections and in the latter section of the premium scale is being affected. From Oklahoma comes reports of substantial purchases in which premiums are involved, and the advances reported from the east can be taken as evidence of strength in that quarter.

However the volume of crude being produced and the uncertain tendency of the refined oil market is sufficient to warrant caution in starting new wells, as work now underway in Oklahoma has yet to show whether or not some threatening areas will produce in larger volume. Evidence of the fact that Oklahoma operators are proceeding on this basis is probably the most encouraging development of the week.

Receding prices on gasoline during the past seven day period were brought on by slackened demand from domestic jobbers and export buyers, and refiners are now putting forth more effort to bolster up the market structure after enjoying a large volume of unsolicited business over the last half of May and throughout the month of June. The decline of the U. S. Motor grade of gasoline from its high mark of 13 cents to 12½ cents lately is a normal seasonal fluctuation, and with several months of heavy gasoline consumption pending, the refiners are not disturbed as to the firmness of their market. Independent refiners in the North Texas district booked orders during the past week for approximately 300 cars from the Gulf Refining Company for delivery over the balance of July to Texas points.

Fuel oil has shown a slight improvement in demand and price since the posting of higher prices on Smackover heavy oils, and continuous production slump in this flush area, while gas oil and other commodities suitable for cracking remain firm in the Mid-Continent district. The demand for cracking materials has been greater than the supply on hand for several months, and the steady growth of the cracking industry in recent years is reflected in the diminishing supply of cracking material on hand.

Independent refiners in the North Texas district have become less aggressive for new crude connections as result of the restricted gasoline buying, and are meeting the requirements of their stills from crude connections taken earlier in the summer when contracts were made with producers at an average premium of 15 cents above the posted price. However, some of the plant owners are paying a bonus of 25 cents for crude conveniently located to their gathering systems in preference to taking crude at a lower premium off their lines, and paying the difference in pipe line transportation costs. The numerous sales of producing properties to major companies in North Texas since spring, and normal decline of production has not forced premiums to be expected level, while it is very improbable that crude premiums will reach a higher level this summer.

The development of a well with gusher proportions from new semi-shallow pay in the heart of the Corsicana-Powell field in the East Central Texas fault region last week by the Humble Oil and Refining Company is not looked upon as a threat to the declining high gravity crude market. This well flowed at the rate of 240 barrels of 38 gravity oil during the first hour after drilling into sandy-lime pay at 2038-46 feet last Thursday night, but declined rapidly, and began cutting from 25 to 30 per cent on the following day. It averaged 30 barrels per hour Saturday, and Sunday jumped back to 55 barrels per hour. The well was drilled in the middle of a 165-acre lease owned by Humble, and is entirely surrounded by wells producing from the Woodbine sand at the 2900-foot level. It was intended for a shallow test of the 1400-1800-foot sand, which proved dry and the crew were casting their lot with fate in trying for a semi-shallow pay just above the Austin chalk formation, with the knowledge that such a pay had shown oil in commercial quantities from other wells in drilling to the Woodbine. The new strike made by Humble is expected to be extremely spotted and confined to a small area when found.

Recent statements issued by leaders of the oil industry seem to widely differ as to the present situation. When the officials of the Prairie Oil and Gas Company issued a statement to the effect that the "brakes" would have to be applied to new drilling, the Oklahoma operators heeded the statement and fashioned their future exploration to a minimum as shown by the operating reports of the past week when only 70 new wells were started in the state. This is comparable to 115 new wells for the previous week or the week in which the statement of warning was issued.

In an interview in New York reecntly H. W. A. Deterding, general managing director of the Royal Dutch, said that more oil was needed to fulfill current and potential contracts for the present year.

In Oklahoma and other Mid-Continent states the situation remains about the same. The market is referred to as "slow and steady". Although the production is showing a slight decline each week, the potential deep sand pools have not yet hit their stride. The completion of the Twin State Oil Company's No. 2 Siler in the Thomas pool of Kay County now insures an abundance of production in that new field while the deep sand Garber wells are about to reach the depth found by Sinclair's No. 25 Belveal in the Wilcox sand.

The Pierce Oil Corporation continues to lead other purchasers of premium oil and each week report new purchases. Up to the present the company has confined their purchases to Central Oklahoma but their last purchase was

made in the Hewitt field of Carter County in the extreme south end of the state. The company bought 48,000 barrels of Hewitt oil from Simpson and Fell, paying 25 cents premium. This price is ten cents higher than the premium being paid by the Empire Crude Oil Purchasing Company for Hewitt crude. The demand for southern Oklahoma production remains strong.

It is being rumored that the Champlin Refining Company of Enid is negotiating for approximately 800,000 barrels of oil in the Tonkawa field storage of T. B. Slick. As this company has always been a leader in paying premiums for high gravity crude, the final consummation of the sale is expected to carry some kind of a premium attached to the posted price.

Prairie Pipe Line Company shipments for month ending June 30, 1925, were 4,716,114 barrels compared to a total of 4,719,835 barrels for the previous month. During the month of June, 1924, the Prairie Pipe Line Company shipped 3,547,890 barrels.

For the first half of the current year more money has been spent in Oklahoma than ever before in a like period. Offset and undeveloped acreage has brought higher prices and more wells have been started than in any other six months period in the history of Oklahoma development.

California Unchanged

There was no change in the markets in California. There is some weakness in the demand for heavier crudes, and it might be said that several of the larger companies are not showing any real desire for new connections of any kind. They continue to make connections when called upon, but there is no scramble.

Natural gasoline production in June will show an increase over May, probably as much as a million gallons, but the market continues fairly steady at prices ranging from 12 to 13 cents. The fact that this product is binging 16 cents a gallon in Mid-Continent helps to hold the lines.

Gasoline is moving in larger volume, both in the West Coast trade territory and for shipment. During the month of June 1,446,481 barrels of gasoline moved through the Panama Canal to Atlantic domestic and foreign ports. That the movement will be even greater through the Canal during July has been predicted. This movement is a great help in keeping stocks in California from growing. They are growing as it is, but the increase would be heart breaking without these shipments.

Fuel oil is a drag on the market. The posted price remains at $1.40 a barrel, but a buyer with the money and bottoms to move the product can pretty much name his price.

The gasoline consumption peak will likely be reached on the West Coast during July and August. Roads are now full of tourists and local people are taking their vacations—largely on wheels.

Second Deep Oil Area in Throckmorton County

Wichita Falls, Texas.—Throckmorton County added its second deep oil producing area early this week when Schimmel Oil Company's R. W. Kelley 1, located in the southwest part of the county, swabbed and flowed 110 barrels of oil on sixteen hour gauge from sandy-lime pay at 2990-94 feet. This wildcat producer is located in the east central part of section 31, Comanche Indian Reserve, and less than one mile east of the Clear Fork of the Brazos River. Several shallow gassers have been completed lately near this deep producer, while Bruce Larkin et al have a small oil pumper in pay at 1831-34 feet located about two miles northeast. Throckmorton County scored its first commercial oil well in the deep pay last September when Humble completed a 50 barrel pumper at 3197 feet in the eastern part of the county near Masters, and a second producer was brought in last April by Reiter-Foster Oil Corporation on an offset location to Humble's discovery well. Schimmel's wildcat is about 16 miles southwest of the Masters pool, and the nearest pipe line connection is at the latter point, where both Prairie and Humble have small lines.

The Litchfield pool in upper Young County was extended a short distance to the northeast late last week when the Plains Production Company's Kilcrease (20-acre lease) 1 swabbed and flowed 625 barrels daily after bailing sand at 968-90 feet. This well is located on the south line of section 1809, and is the first large production obtained on the northeast side of the field. The Dunagan-Groves pool, located several miles southwest of Olney in Young County, was given a double extension to the south last week. The F. H. E. Oil Company's Dunagan 4 swabbed and flowed at the rate of 14 barrels per hour after drilling sand at 1011-12 feet, while Gulf Production Company's F. G. Swain 2 swabbed 147 barrels in 17 hours at 1002 feet.

The Norday pool, located in Archer County and several miles north of the Swastika field, is heralded as the next active drilling area in the county, as the potential producing limits of the pool is divided into small leases and owned by numerous companies and operators. Important extensions to the south, east and northeast were in sight this week when four outside tests drilled into the 1400-foot sand. The Texas Company's Anderson 1, located about 1000 feet northeast of the discovery well, is testing sand at 1432 feet, with excellent chances for a good producer, while Weldon et al and Empire Gas & Fuel Company have tests ready for completion to the south of production.

Prairie Oil & Gas Company's wildcat producer on the Waggoner ranch in Wilbarger oCunty, section 45, block 4, continues to swab and flow about 75 barrels daily from the top of deep pay at 2320 feet, while pulling big pipe and setting a string of 5 3/16 inch casing to drill in. Humble's Waggoner 1-D, located in the northwest quarter of section 50, block 14, began bailing oil from sand at 1300-09 feet, thereby giving this area its first oil production at a shallow level. The production of the well has not been determined, although a fair sized pumper is assured, while no water trouble has developed. This well was drilling for the 1790-foot sand discovered by Gulf last April in the northeast quarter of the same section.

The Nocona shallow oil and gas field in upper Montague County completed its largest low gravity oil producer last week when the Newblock Oil Company's J. W. Maddox 1 swabbed 380 barrels of 21.5 gravity oil from broken oil sand at 884-921 feet. This well had about twenty million cubic feet of dry gas from sand at 967-84 feet. Humphreys Corporation's W. W. Jones 2, which has been blowing wild as a dry gasser from broken gas sand at 527-705 feet, with a total depth of 833 feet, has successfully baffled experts after many weeks, and the drainage on the gas pay is having a telling effeet in other parts of the field.

Frankel District in Stephens County Extended to South

Breckenridge, Texas. — The semi-wildcat test of Cull C. Moorman and others of Ranger on the G. I. Pace land in section 65 extended the 3600-foot pay in the Frankell district of Stephens County a short distance to the south early this week with an initial flow of 500 barrels of 41 gravity oil after drilling into top of pay at 3618 feet with open hole. The Texas Pipe Line Company has connected to the well, and is purchasing the oil. This well is located on the south line of the southeast quarter of the section, and was on the verge of being abandoned after proving dry in gray lime formation at 3545-3600 feet. Casing is now being lowered to the top of the oil and gas pay, and an increase in production is expected when completely drilled in. The Pace producer is about three miles north and slightly east of the new Barney Carter field.

The completion of a small flowing well in the heart of the Barney Carter field and promise of a commercial oil pumper from the Ranger sand at a lower level were the only encouraging developments in this area during the past week.

Arkansas Producers Have Not Fared Badly in Selling Their Oil

Flush production was met by healthy demand and price held higher than in previous booms

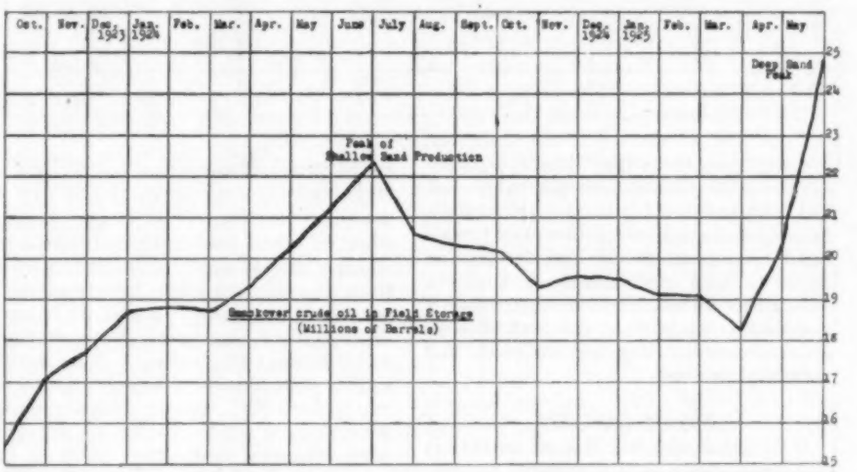
By Special Staff Correspondent

Shreveport, La.—Now that the flood of oil at Smackover is subsiding, for a time at least, operators there are presented with their first opportunity to relax from the strain of the last five months; and to analyze and study the causes and effects of the feature events of the greatest oil boom in the world's history. Production from the second oil-bearing sand is declining, as it inevitably must; and, although a third sand lately has been proven productive over an area of approximately ten square miles, it appears that there may be a brief lull in the development campaign before the full effect of new third-sand production is felt.

When the oil industry at large first realized that the great Arkansas field might surpass the best records of Cushing and other wonder pools whose floods of oil brought about the collapse of price structures, it was believed that similar distressful conditions might result from the threatening situation at Smackover. It was recalled that the shallow sand boom, with its peak of 152,000 barrels per day reached during June, of 1924, depressed crude value to thirty, forty, and fifty cents per barrel over long periods of time.

As the deep sand boom gained headway, previous records were exceeded early in April of this year; and it was foreseen that the flush might attain a peak two or three times greater than that of the shallow sand. It was clear that production might exceed shipping facilities; and, with all these thoughts in mind, it seemed equally clear that distress conditions must ensue,—that Smackover heavy oil might become unsaleable at any price.

However, as the great boom is viewed in restrospect, producers realize that their flood of flush production was marketed at far more favorable figures than in the case of other earlier booms. Even after



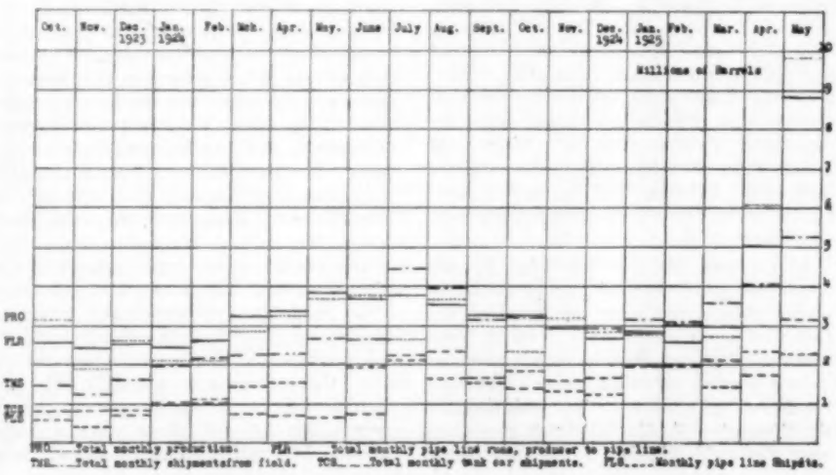
the discovery of the second sand in February of this year, the value of heavy oil rose to a peak price of $1.30 per barrel, indicating that at that time, February 14, the full possibilities of the newly found reservoir were not foreseen.

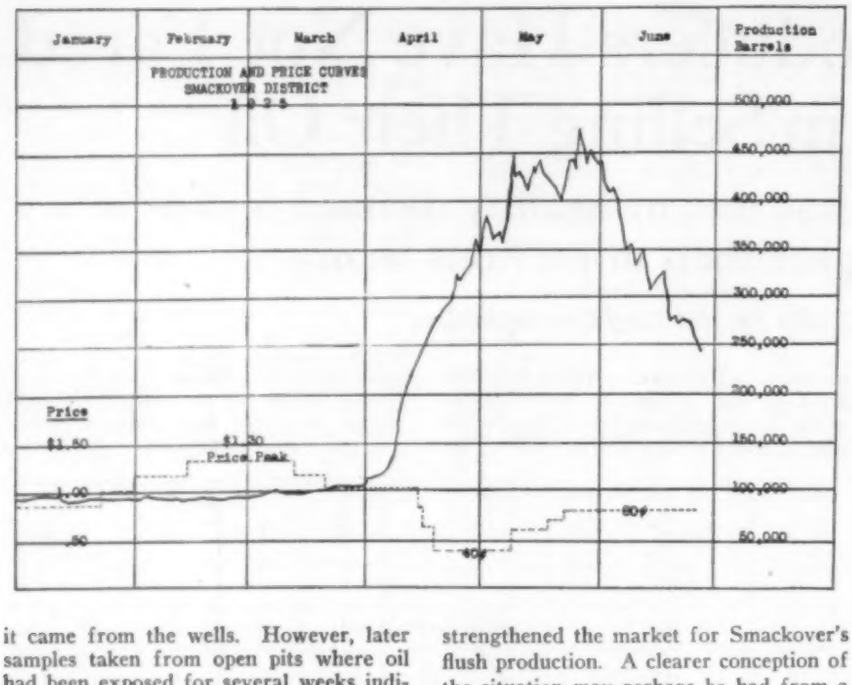
Price Fluctuations

The influence of deep sand production, as reflected by statistics, became apparent early in March; and on March 13 a cut of fifteen cents per barrel was posted by the major pipe line companies. One week later, with production averages rising still, a second cut of fifteen cents per barrel was announced. The posted value of heavy crude then remained stationary at $1.00 per barrel until April 14, when, total production having risen to around 250,000 barrels per day, including 158,000 barrels from the deep sand, a twenty-cent cut was announced. A further twenty-cent reduction was bulletined on the second day following; and two days later a third cut of twenty cents was posted, making Smackover heavy worth only forty cents per barrel. Between April 16 and 25 the Standard Oil Company paid a preferential price from twenty to thirty cents per barrel higher on heavy oil run from old customers not in excess of established shipping facilities, paying from forty to fifty cents per barrel for heavy oil run to field storage; but on the latter date the higher prices were abolished.

At this stage of the boom, panic reigned among the producers. Pipe line companies placed an embargo on new connections; and, temporarily, oil went begging at forty cents per barrel, with thirty cents bid. Production rose abruptly to 400,000 barrels per day, including 315,000 barrels from the second sand; and only the ready availability of extensive earthen storage constructed during the earlier boom saved the day. Millions of barrels of oil were run into earthen pits; and a number of gushers were pinched down from a maximum potential flow of thirty, forty, and fifty thousand barrels per day, in individual instances.

It was at this point that the general crude market began to react to the scarcity of light oils in the Mid-Continent; and the effect of rising values became apparent, even at Smackover. It previously had been supposed, from analysis, that heavy oil produced from the deep sand would not meet fuel oil specifications as





it came from the wells. However, later samples taken from open pits where oil had been exposed for several weeks indicated that the lighter fractions had evaporated to such an extent that the residue could be sold and burned as fuel oil. When this became known, there was a great influx of brokers and fuel oil buyers representing shipping, railroad, and industrial interests.

Buyers Seek Oil

It is axiomatic that the oil market is more responsive to the demands of, say, ten buyers seeking 10,000 barrels each than, for example, to the requirements of one major purchaser in search of oil in million-barrel lots. Such was the case at Smackover. Fuel oil buyers literally swarmed into El Dorado to reap from the bountiful harvest of crude oil.

The supply was great, greater than ever before; but the demand was even greater Those who do not admit that the law of supply and demand operates in the oil industry describe the conditions then existing by saying that the situation had gotten beyond the control of the Standard Oil Company. In that sentence the word "control", at least, is used advisedly. In truth, the Smackover boom did get beyond the control of any one company, or group of interests.

Premiums were offered by brokers and fuel oil buyers; and, after digging vast acres of earthen storage, the major pipe line companies retaliated by posting higher and higher prices. Thus, as shown on the accompanying chart, production averages and crude values rose simultaneously during the period from May 8 to 22. It has been the history of other booms that, as production rose, crude values declined; but not so at Smackover. Production reached a peak of 473,000 barrels per day, on May 26, after crude values had been increased by 100 per cent over the low figure of forty cents per barrel offered during the last part of April and the first of May.

It has been shown above how the clamorings of a swarm of fuel oil buyers strengthened the market for Smackover's flush production. A clearer conception of the situation may perhaps be had from a study of the accompanying chart, on which it may be seen that shipments away from the field through tank cars were consistently greater than movements through trunk pipe lines. Statistics show that, during the twelve months period ending with May of this year, a total of more than 42½ milloin barrels of oil were shipped out of the Smackover District. Of this total, more than 53 per cent was moved in tank cars. Since the beginning of the second sand boom the percentage of tank car shipments over pipe line movements has been even greater, as is reflected by the accompanying graphic curves.

For instance, it is seen that, at the peak of deep sand production, during May, production, pipe line acceptances from producers, and total shipments out of the field all climbed to new high records; but that pipe line shipments showed a slight decline as compared with the previous month. This may be explained in part by the assumption that trunk lines had reached their ultimate capacity during April. But the major purchasers all had plenty of field storage available; and the chief reason why rail movements were so large is found in the fact that substantial premiums, ranging at times up to fifteen cents per barrel, were offered and paid by the independents. The Standard Pipe Line Company's new ten-inch line to the Mississippi River may be completed during July or August, at which time pipe line shipments may be increased. Oil now held in earthen storage may be moved to Baton Rouge, or elsewhere.

In studying the reasons why distress conditions were avoided during the boom at Smackover, one must not overlook the fact that producers were in a much more favorable position than is usually the case during great production booms. Weather conditions which were adverse during the development of the shallow pay were very favorable during the second boom. There were no heavy or continued rains to make hauling expensive, and no overflows or freshets to threaten the safety of earthen storage or to hamper the excavation of additional pits as needed. The promoters, with one or two notable exceptions, had all been cast in prison; and there were few "bollweevil" operators to hinder the efforts of experienced oil men. Many of the smaller syndicates had sold out prior to the discovery of the second sand, leaving the field in possession of successful organizations, large and small, whose financial groundwork had been solidly constructed from the profits of shallow sand production. Thus, producers were not forced to sacrifice their flush production to defray development costs; and were able to hold their oil for the higher prices which followed such an action.

Decline Sets In

Due to the encroachment of salt water and the inevitable decline in gas pressure, production started a precipitous decline during the last days of April which has lasted throughout the month of June. As at present, deep sand production has fallen to around 175,000 barrels per day. The shallow sand has settled to around 43,000 barrels per day; and the Louann district is producing approximately 28,600 barrels per day.

More than 430 deep wells have been completed to date, and there are still more than 300 drilling rigs engaged in the deep sand campaign. Approximately 120 deep wells have been put on the beam; but more than that number are dead, awaiting the installation of standard rigs and pumping equipment. Forty-five wells are being operated by compressed air or natural gas pressure.

The deep sand has yielded more than 22,000,000 barrels of oil since its discovery early in February of this year; and the field as a whole has produced more than 110,000,000 barrels since the completion of the V. K. F. well in July, 1922, less than three years ago. At the end of May, 1925, there were approximately 24¾ million barrels of oil held in field storage at Smackover. Statistics for June are incomplete as this is written; but, according to reliable estimates, the end of the month may find 26 and 27 million barrels of oil stored in the vicinity of Smackover.

In reading the accompanying statistical chart, the closely dotted line PRO should be interpreted as referring to production in the usual sense of the word. The continuous line PLR refers to pipe line acceptances, or runs from producers to pipe lines. The line TMS relates to total shipments, by months, away from the field. The line TCS represents tank car shipments, and the line PLS reflects pipe line shipments away from the field. Units are of one million barrels.

The period under consideration begins with October, 1923, and ends with May, 1925; and thus embraces the peaks of production from both the shallow and the deep sands. At the beginning of the period, there were approximately 15½ million barrels of oil in storage at Smackover. At the end, there were approximately 24¾ million barrels stored there.

Texas Commission Conference May Change Conservation Law

Open mindedness shown when members of oil regulating body ask co-operation of operators

By A. R. McTee
Staff Representative

Austin, Texas.—Plans for carrying on the work of the oil and gas division of the Railroad Commission of Texas were discussed here in a recent meeting at which all the deputy supervisors were present, along with the chief of the division, as well as the three railroad commissioners. No definite changes in any of the rules pertaining to the conservation of oil and gas were made at the meeting, but suggestions were made both by the chief of the division and various deputy supervisors which will probably ultimately result in a number of changes in the rules of the division, and possibly a rewriting of the conservation law.

Immediate results of the meeting will be a rearrangement of territory with one or two new districts created, and the addition of two deputy supervisors, who heretofore have held office jobs, to the field staff. Definite boundary lines for the new territory have not yet been decided, but it is probable that one supervisor will be placed in the Panhandle of Texas to spend all his time there. The rearrangement of old territory will be made within a short time.

In commenting upon probable changes in the rules pertaining to oil and gas, Chief Supervisor H. E. Bell said that the conference was called for the purpose of discussing the practicability of a number of the rules as they now stand. He further stated that no changes would be made in these rules immediately, but that further conferences with operators, and with deputy supervisors, would be called with a view to changing such rules as present conditions suggest advisable.

Want Suggestions

In contemplating changes in the rules, the chief supervisor solicits letters and personal conferences from members of the oil fraternity and other interested parties. Special attention will be given the question of swabbing and the use of vacuum.

The division has held that the rule against vacuum prohibits swabbing of all kinds except for the purpose of cleaning out or testing wells. Section 8 of Rule 39 reads as follows: "Swabbing into open pits is prohibited, except when testing a well or cleaning out, and such swabbing shall not continue for a longer period than 10 days, without permission from the Railroad Commission." Mr. Bell pointed out that many people have thought that swabbing for production for a long period of time is permissible, providing the swabbing is not into open pits. The supervisor is inclined to the belief that this section of the rule should not be so construed, and when viewed in connection with Rule 40, which prohibits the use of vacuum pumps except in certain cases, he says that special permits to swab for production ought to be obtained from the commission.

On this point the supervisor urges that operators contribute their opinions on the practicability of the rule as it now stands.

During the conference it was brought out by certain of the deputy supervisors that in certain instances producers have, by the use of pumps, merely skimmed oil from wells that are producing water, and have left water in the bottom of the hole. This practice was severely condemned.

Much thought is being given to the question of producing oil by using compressed air, by the oil and gas division. The supervisor believes this practice to be bad, and asks for information from experienced operators. No specific rule against producing with air is contained in the conservation law, but there is a strong possibility of one being recommended to the legislature when changes are to be considered.

Casing Requirements

Another change which will probably be recommended is that of requiring more casing in drilling gas wells. In view of the fact that gas blowouts are frequent in the southwestern part of the state and a few other gas fields, the deputy supervisors were practically unanimous that operators ought to be required to set more casing when drilling a well where there is a big probability of striking a heavy gas stratum. Instances were mentioned where very little casing had been set, although the hole was 2000 feet deep or more, and in these instances blowouts resulted. It was suggested that casing ought to be set to the gas sand and cemented. In case of a blowout, the hole would then be protected, and there would be little danger of a crater being formed. This would also aid in bringing the well under control.

Section 2 of Rule 39 will probably come up for a change. This rule reads: "No flow tank, unless it is entirely buried, or other oil tank of any size, shall hereafter be placed nearer than 150 feet to any derrick, rig, building, power plant, or boiler of any description, except where topography does not permit." Section 3 of the same rule reads: "No field working tank having a capacity of 5000 barrels or more shall hereafter be built nearer than 200 feet (measured from shell to shell) to any other like tank or tanks."

Both these rules are impossible to apply in certain instances, it was brought out, and cases in the Lytton Springs field were cited. Certain of the deputy supervisors urged that some change be made that would protect the interests of the producer and yet be consistent with the conservation policy of the state government.

Rule 37, which prescribes the distances between wells, was discussed, but no changes were recommended. Exceptions to this rule are possible through special permit, and it was the general opinion that emergency cases could be covered in this way.

Fully one-half of the time spent in the conference was devoted to questions of plugging. In supervising the plugging of abandoned wells, the oil and gas division can render its greatest aid to the oil interests of the state, and in general the deputy supervisors superintend more work of this nature than anything else, though it is only one of their many duties.

Proper methods of plugging as prescribed by the conservation law require definite procedure. Deputy supervisors state that 95 per cent of the operating companies plug their wells properly, but that the other 5 per cent, represented by irresponsible companies with no assets, require the closest watch, and even then many wells are plugged wrong.

Bond for Plugging

To overcome this difficulty, it was unanimously agreed that salvage companies ought to be bonded to the extent of the cost of salvaging a well and plugging it. Of course, the state has no authority under present laws to put such a company under bond, but it was suggested that adjoining leaseholders and parties interested in offset wells might bring pressure to bear in getting proper plugging. It was further suggested that a law requiring salvage companies to furnish bond would be a good conservation measure. The chief

(Continued on page 30.)

Wildcat Activity Spreading Over West Texas

Crockett County well a small pumper; further work on adjoining acreage proceeds cautiously

By H. H. King

Staff Representative

San Angelo, Texas.—Wildcat exploration work in West Texas is steadily sweeping into new counties far removed from the established oil producing areas in Reagan and Crockett Counties, and the magnitude of the interest aroused generally as to the potentialities of this partially explored section of the State is resulting in liberal development appropriations by major companies, while individual wildcatters are finding a ready market for acreage to finance their drilling. The Marland Oil Company of Texas is reported to have consummated a deal with New York financial interests to spend $200,000 in the drilling of four separate wildcat structures selected after an exhaustive geological survey, and two of the locations have been made in Glasscock and Mitchell Counties to be started early in August, while the other two will be started in September. In connection with this deal Marland is credited with retaining 25 per cent of the acreage in each drilling block, and will do all the drilling.

The Glasscock County wildcat to be started next month by Marland and associates will be located on the G. Mook ranch in the northeast corner of the county, and in the southeast corner of section 27, T. & P. RR. survey, block 33, T-3-S. The Mitchell County location has been made on the D. H. Snyder ranch, and in the northeast corner of section 38, T. & P. RR. survey, block 30, T-1-S, or southwest of the town of Iatan. The bulk of the lease protection obtained by Marland against this test is located across the county line in Howard County. The other two wildcat blocks to be developed by Marland and others are located in Garza and Crockett Counties. Marland and Humble have obtained a large quantity of wildcat leases in Crockett County on a 50-50 basis, and Marland is drilling a wildcat test in Kent County below 3000 feet with C. F. Greenwood and others on a partnership basis.

Lease buying around the wildcat oil producer in Crockett County has about petered out, except for purchases made last week by Gulf and Roxana from C. W. Webster for small tracts in section 56, located due south of the discovery well, at prices ranging up to $1,325 per acre, of which one half was cash and the balance payable in oil, if produced. Virtually all leases for several miles around this small oil producer have been bought in by major oil companies and independent companies.

Crockett Well Small

The removal of the lost swab and tools from the bottom of the wildcat oil producer in Crockett County last week by its new owners—Humble and Marland Oil Company of Texas—will not be followed by deeper drilling for the time being, and equipment is being erected to pump the well on the beam. The well continues to flow on a average of 22 barrels of 32 gravity pipe line oil daily, but swabbed at the rate of 125 barrels daily when tested recently. The starting of an active development program by major companies and independent operators, who are credited with having spent more than $5,000,000 in cash and oil payments for leases and royalties in North Central Crockett County since the discovery of oil early in June, has been delayed pending the final completion of the first producer. Humble has announced the first new location to be made in vicinity of the discovery well, and will drill on the Harris Brothers Ranch about four and one-half miles southwest of the oil producer. Humble's location has been made 330 feet each way from the northeast corner of section 12, Washington County Railway survey, block 3. Humble and Marland are obligated to drill four tests in opposite directions from the discovery well, as per agreement in their contract when the well and leases were acquired from the C. R. Bunker Interests.

The Crockett County discovery well is accepted as being on the edge of a major producing structure, but the performance of the well to date indicates that it is only a small pumper at 2647 feet, and the heavy purchases of leases and royalties around the well were based on what may develop by additional drilling, rather than what the well is now doing. This wildcat producer goes on record as being the first in West Texas to attract big money from major companies and individuals, and unless a fair degree of success is enjoyed by the concerns participating in the play, the future wildcat strikes in West Texas will get less consideration from lease buyers. The limited value of surface geology in this particular section of West Texas places the lease buyers in the dark as far as picking the trend of production from the first well, with the result that purchasers have been scattered in all four directions as much as possible.

Leasing of large drilling blocks and actual wildcat development work was reaching large proportions throughout West Texas prior to the discovery of oil in upper Crockett County on the L. P. Powell ranch, and an added impetus has been noticeable during the past two weeks by reason of the uncovering of a new oil area. That a series of oil fields of major porportions exist in the general vicinity of the Reagan and Crockett County producing areas, is not beyond reason to predict, and the search for new fields will be conducted for many months without a letup.

Evidence as to what extent activity is gaining in West Texas is shown by some of the following deals made by major companies: Humble is leasing a block in the northeast corner of Glasscock Coutny amounting to approximately 15,000 acres, with part of the block extending over into the southeast corner of Howard County and the Northwest corner of Sterling County. Both Humble and Marland have a large force of field geologists, lease buyers and instrument men working West Texas, and each have a wildcat test underway as is shown in the list of West Texas wildcat operations carried in this issue.

Gulf Production Company has a large force in the field, and has returned Ben Belt, veteran gologist for Gulf in West Texas, to the district to work up drilling blocks. Gulf is now drilling wildcats in Reagan, Glasscock, Garza and Pecos Counties. Roxana has been especially active in the vicinity of the Crockett County discovery well, and offered to buy the well and leases, if Humble and Marland turned down the trade owing to titles.

Dixie Oil Company, an operating subsidiary of the Standard Oil Company of Indiana and a comparatively new concern in Texas, has cut loose with a big lease buying program in Crockett, Pecos and Reeves Counties, and has made location to test for shallow oil production on Sherbino ranch in section 51, G. C. & S. F. R. R. survey, block C-4 in Pecos County. The Mid-West Exploration Company, a sister concern to the Dixie Oil Company, is in the midst of the wildcat lease buying in West Texas, and has spent a large sum in Crockett and Garza Counties, with a district office at San Angelo and Amarillo. Rycade, Rio Bravo and Pure Oil Company have each established representatives in the district to obtain protection around favorably located wildcats. Pure has lease on a block of about 128 sections in the northern part of Culberson County, and have made location to drill on the Mrs. G. H. Guard ranch in the center of the SW¼ of section 12, T. & P. Ry survey, block 63, Township 1. The California Company, a subsidiary of Standard of California, has taken general checkerboard lease protection in most of the counties in West Texas, and is drilling in Culberson, Scurry and Reagan Counties, with others being contemplated. The Cumberland Oil & Gas Company is erecting rig to drill on the Couch ranch in lower Crockett County, and in the center of the northeast quarter of section 18, D. & S. E. R. R. survey, block Q-R. Claude Byler et al have made location for a test in Jeff Davis County to be drilled on the Wingo land in the center of the NW¼ of the E½ of section 20, block G-25. J. W. Sorrelle et al have taken leases on a 90,000 acre block in Sutton County, and have announced that a wildcat will be drilled on the Clarkson-Ellison & McKnight ranch in section 17, Georgetown Railway survey, block A-9.

Refiners Absorbing Increased Heavy Oil Production

DESPITE a record production of crude oil for May of this year, stocks at refineries east of the Rockies at the end of the month showed but a slight gain over April, while the total is a trifle under that for the end of May, 1924. This condition as well as other factors in the crude oil situation, are shown in the bulletin issued by the Geological Survey.

Crude production reached an average of 2,196,000 barrels daily for May, surpassing the average for November, 1923. Here is what the Survey bulletin says of the record production:

"The greatly increased output of the Smackover field, made the production of petroleum during May the greatest for any month in the history of the industry. Preliminary figures reported to the Geological Survey of runs from wells (which doubtless will be increased when data for total production become available) show a daiiy average production for the month of 2,196,000 barrels, which is 16,400 barrels more than the daily average for November, 1923, when the flush output of Southern California and Powell fields swelled the total to the previous high record."

That refiners are making use of the heavier oil, particularly Smackover, is borne out by the fact that stocks show such a slight increase at plants east of the Rockies. These stocks at the end of April totaled 308,382,000 barrels. At the end of May, the total had climbed to only 311,429,000 barrels. May, 1924, showed a stock total of 311,536,000 barrels.

Deliveries of crude oil to refineries in May showed an advance in keeping with their increased stocks. Stocks increased 3,047,000 barrels. Deliveries of crude, exclusive of California grades, showed a jump of 2,918,000 barrels over April. So refinery runs east of the Rockies have hardly kept pace with deliveries.

Light oil output continues to decline. Of the trend in this direction, the bulletin reads:

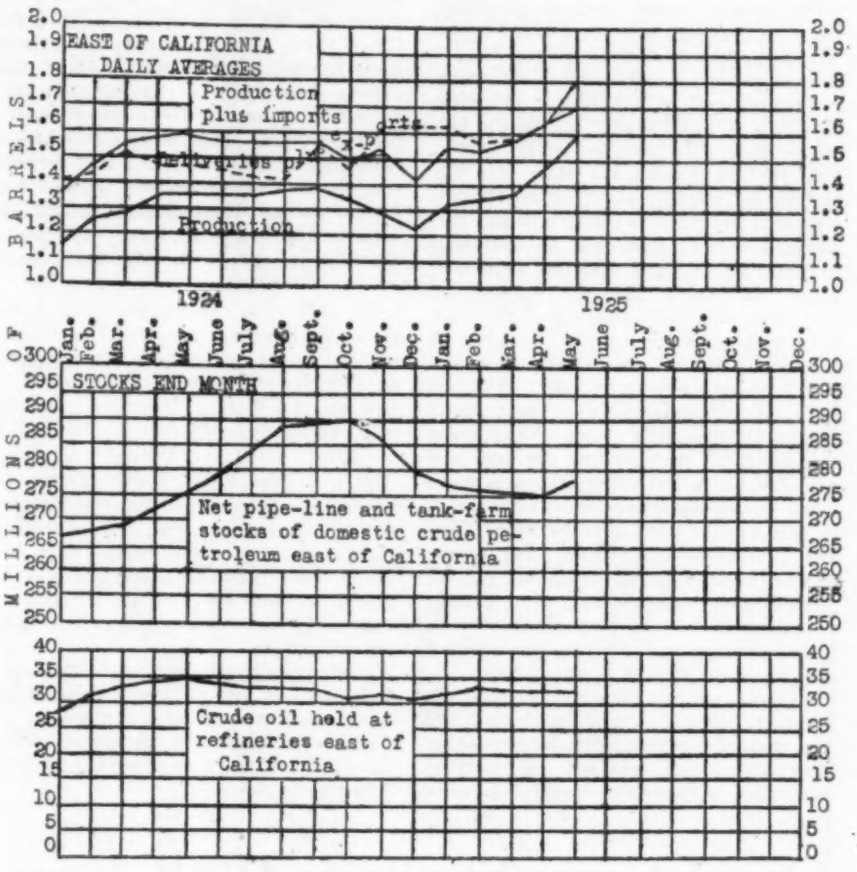
"The increased output was chiefly of heavy oil, and during May the daily average production of light crude (24 degrees and lighter) decreased 17,694 barrels."

This decrease in light oil output is not equal to the indicated drop in refinery consumption.

The conclusion to be reached from a study of the figures is that refiners are absorbing the increased oil output of the United States, although it is a heavy product. That the figures for June will drop from those of May is certain, as the Smackover production is now on a steady decline.

A change in the presentation of crude oil production figures will take place for the June report, the bulletin saying:

"Beginning with the report for June, statistics of crude petroleum and refined products will be published in a combined statement. This unification of statistics of petroleum, which has long been desired, is made possible by the President's order, transferring the Division of Mineral Resources of the Survey to the Department of Commerce, where on July 1, it will become a part of the Bureau of Mines."



Petroleum production and stocks for May 1925, as shown by graphs of the U. S. Geological Survey

New Sullivan Sales Manager

Effective July 1, the Sullivan Machinery Company, Chicago, Ill., announces the appointment of Raymond B. Hosken as general sales manager of domestic sales for the company. Mr. Hoskin has been attached to the sales department of the Sullivan Machinery Company since his graduation from the University of Michigan in 1910. After four years in the local sales department in Chicago, he was appointed Australian manager with headquarters at Sydney New South Wales, where he remained until 1921, when he was appointed assistant to Howard T. Walsh, vice president in charge of sales at Chicago.

Regan Company Puts Man In Mid-Continent Field

San Pedro, Calif.—With plans completed for intensive coverage of the Mid-Continent field to acquaint the many oil producers with the virtues of Regan products, the Regan Forge and Engineering Company of San Pedro has just appointed Jack Becker of the Becker Specialty Company to take charge of Mid-Continent activities. He will make his headquarters in Tulsa, and will keep in close touch with operators throughout the territory.

Burns Tools to Peru

Okmulgee, Okla.—The Burns Tool Company reports a shipment of "Burns Tubular Temper Screws" to Cabo Blanco, Peru, to the Lobitos Oil Fields, Ltd. This is one of the many shipments made to foreign countries by the Burns Tool Company within the past year they having regular customers in the Island of Sumatra, in Java, and in the Dutch East Indies and many other countries.

Texas Commission Conference May Lead to Changing Conservation Law

(Continued from page 27.)

supervisor did not indicate whether he considered such a law might be suggested or not.

In connection with the plugging of wells, it was shown that even though the state has the right to a first lien on all equipment on a well to pay for its proper plugging, often much difficulty is encountered in handling a plugging situation when the well equipment has to be held. It was generally agreed that the law giving the state this authority is "morally right," even though its enforcement is often practically impossible. The Railroad Commission and the oil and gas division were emphatic in urging that the supervisors impress upon landowners that they are responsible for the proper plugging of a well drilled on their land when the operator or contractor falls down on the job. Instances were mentioned where, rather than have the surface damaged, the man owning the land had plugged wells, but other instances were cited where the landowner had refused. A suit by the state is to be avoided, in the opinion of the division, but supervisors must impress upon all parties the mutual responsibility for proper plugging.

Whether or not changes in this law will be suggested was not indicated.

In commenting upon the general attitude of producers toward the oil and gas division, supervisors declared that they were well received everywhere, and that responsible operators were eager to co-operate with them in every respect.

Mr. Bell stated that as a whole the oil industry in Texas showed a strong spirit of co-operation with the division, but he also pointed out that there has always been more or less tardiness and carelessness in making reports and filling out forms, especially in ample time. Often these forms are sent in so late, both to the Austin office and to the deputy supervisor in the different districts, that they are too late to serve their purpose. This is true of notices to drill, notices to shoot, and notices to plug. The supervisor states that forms on all these items should be filed in time to enable the deputy supervisor in charge to take such steps as are necessary.

In certain instances the deputy supervisors have not received the notices in time to be present at the plugging or shooting. These notices should be sent to the deputy supervisor instead of to the Austin office.

Reports were heard from every district in Texas through the deputy supervisors. Efforts will be concentrated during the coming year on conserving the gas supply in Southwest Texas, and those rules pertaining to gas will be given serious study with a view to changing or modifying them wherever necessary.

Under the new arrangement of territory, no two supervisors will be in the same district, yet where possible the districts will be close enough to enable the men in charge to work together on emergency cases.

"Conservation Branch" Is New Government Oil Agency

Washington, D. C.—A new unit, to be known as the "Conservation Branch," has been created in the Interior Department, under the supervision of the director of the Geological Survey, to have engineering control of all mineral leasing on the public domain and the classification of public lands.

In announcing the change, which follows the transfer of the Bureau of Mines from the Interior Department to the Department of Commerce and the transfer of the public land mineral leasing activities from the Bureau of Mines to the Geological Survey, it is pointed out that a more efficient organization is made available. "The Secretary of the Interior is defining the conservation policy in his department along practical lines," it was stated. "Just as the President's oil conservation board is now engaged in the appraisal of the possibilities of this resource so essential to industry, the same principle is being applied through the organization of this branch in the Geological Survey."

Los Angeles, Calif., July 4.—The California Railroad Commission has granted permission to the Southern Counties Gas Company to construct and operate a pipe line between Ventura and Los Angeles for the transport of natural gas.

Good Semi-Shallow Well For Corsicana-Powell

Corsicana, Texas.—The completion of an unusually large flowing well from new semi-shallow pay in the heart of the Corsicana-Powell field last Thursday night by Humble Oil and Refining Company furnished the first flush production of any consequence on the East Central Texas fault line since the passing of the Wortham field. This well is located near the center of the S. D. Ramsey 165-acre lease developed by Humble in 1923-24 for the Woodbine pay, and lately has been furnishing small pumpers from shallow sand at 1400-1800 feet. Humble's Ramsey 30-B proved dry in this shallow sand, and encountered sandy-lime pay at 2038-46 feet, which blew out as a big gasser near the top, and when drilled in flowed at the rate of 240 barrels of oil per hour for the first hour, with an estimated production of 2500 barrels for the first 24 hours. This oil is the same gravity as that found in the lower sand. The production began declining, and on the second day the well was making from 25 to 30 per cent cut oil. Saturday the production dropped to 700 barrels daily, but jumped back to 1300 barrels for the 24-hours ending Monday morning of this week.

The oil horizon furnishing production for Humble's big semi-shallow well was known to exist in certain parts of the field by reason of showings logged at this depth in drilling down to the Woodbine. Atlantic Oil Producing Company's W. S. Kellum 9, located about one and three-quarter miles southwest of Humble's unusual well, is credited with having flowed better than 500 barrels of oil from sand at 2121-27 feet while drilling to the Woodbine with open hole, but the pay was mudded off and passed up for the deeper flush production. As result of the showing made by Humble's well, Atlantic will make a test of this semi-shallow pay, while other lease owners will do likewise, although it is generally believed that only a small portion of the field will produce at this level, just as the shallow sands have been found to be extremely spotted.

Two new oil producers and an important extension to the gas area were reported from the new North Currie field during the past week. Barkley-Meadows, who discovered the oil field early last month, have completed their second well on the Hilburn 15-acre lease flowing at rate of 165 barrels of 44 gravity oil and about one million cubic feet of gas from regular Woodbine sand pay at 2974-92 feet. The Sun Oil Company's A. Hilburn 2, is swabbing 90 barrels daily with small gas production from sand at 2979-94 feet, thereby widening the field one location to the west. Although the initial production of wells in this new pool are comparatively small, the quality of the oil is such that a 25 cent premium has been posted by The Texas Pipe Line Company, and no water has been encountered. The field is expected to prove about five locations wide, and gives promise of being a mile or less in length.

Strotman and others' semi-wildcat on the Ed. Bounds 75-acre lease, located slightly more than one mile southwest of the Hilburn oil producers, and cut off from the old Currie field by deep dry holes, developed a flow of one million feet of gas after drilling into the Woodbine sand at 3105-27 feet.

Kaufman County added another wildcat failure early this week when Cranfill-Kirby & Humphreys Corporation's M. J. Tharp 1, G. P. Dike survey, tested salt water in the Woodbine at 3353 feet.

Reconnaissance Study of the Salado Arch in Northeastern Mexico[1]

Territory adjacent to Rio Grande has geological features which may mark oil deposits

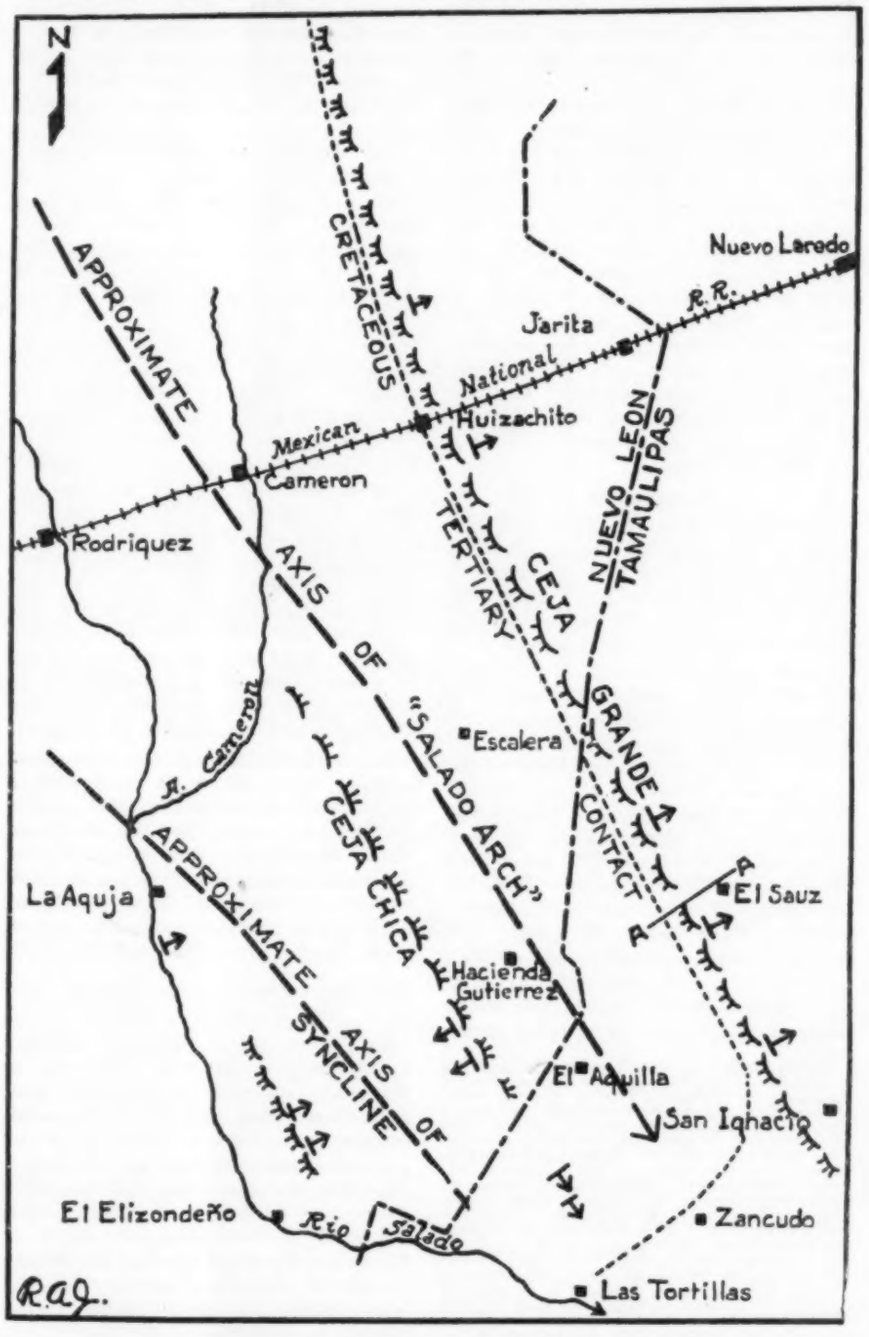
By Richard A. Jones

IN the part of Northeastern Mexico that borders the Rio Grande are a number of geological structural features which may mark important oil possibilities. The Salado Arch is a prominent anticline with northwesterly axial trend, approximately 100 miles long, in Nuevo Leon and Tamaulipas. Upper Cretaceous rocks are exposed along the crest of the arch and to the west where an east-facing escarpment marks the westward dip of the beds. A few miles east of the axis of the arch and running parallel to it is a very prominent west-facing escarpment, the upper rocks of which are of Eocene age. A measured section of the latter shows a total thickness of 5422 feet. The anticline plunges southeast and the steeper limb of the fold is on the basinward rather than the mountainward side. Prospects of oil production are favorable on account of the probable occurrence within drilling distance of petroliferous formations equivalent to those of the Tampico embayment.

Unless unforeseen developments occur, the oil fields of Tampico have passed the peak of production. The pools of the Dos Bocas—Alamo district, the once marvelous "Golden Lane" of Mexico, are partially or completely flooded by salt water. The Panuco fields have in the past year experienced a revival in activity furnished by the Cacalilao pool. However, unless new fields are developed, it appears inevitable that Mexico will, in the course of a few years, fall from the position which she now holds as the second greatest producer of petroleum in the world; and it seems likely that the fall in production will be as spasmodic as was the rise.

Coincident with the decline of petroleum productivity in the Huasteca region, there has been a search for potential oil fields outside the Tampico embayment. That part of Northeastern Mexico in Nuevo Leon and Tamaulipas bordering the Rio Grande contains structural features which have aroused general investigation.

Among the prominent structures of this area may be mentioned the Aldamas anticline, deriving its name from the town of Los Aldamas, Nuevo Leon. North of the Aldamas fold is the Guerrero anticline, located about 8 miles west of south of Guerrero, Tamaulipas, and approximately 15 miles northeast of Paras, Nuevo Leon. The Guerrero anticline is of the "picture" variety, expressing itself in a narrow, eroded anticlinal valley, bordered by sandstone-capped hills—a delight to the eye of the Gulf Coast geologist who has become accustomed to the vague, uncertain expression of structure which characterizes the soft surface rocks of



SKETCH MAP OF SALADO ARCH
NUEVO LEON AND TAMAULIPAS, MEX.

0 Miles 5 10 15 20

FIG. 1

[1]Published by permission of the Humble Oil and Refining Company, Houston, Texas.

many producing oil fields. The fold is approximately 8 miles long by 3 miles wide at the place of greatest width. Northwest of the Guerrero anticline are the hills of La Lajilla, east of the Rio Sabinas and near Rancho La Lajilla. The structure here appears to be due principally to faulting. North of La Lajilla and about 10 miles northeast of the village of Las Tortillas, Tamaulipas, on the Rio Salado, are the rather complex structural conditions of the Tanque-Barreta area. No doubt many minor folds exist which detailed examination will reveal.

This brief statement summarizes certain of the main structures of the Rio Grande area in Northeastern Mexico, which may in the future become the site of important oil fields. The present paper is not, however, concerned with them but with the adjacent region to the north, the region which has been termed by the author the "Salado Arch." It is a reconnaissance study[2] of the larger geologic features of the territory roughly defined as follows: the part of Nuevo Leon and Tamaulipas lying between the Rio Grande and the Rio Salado, and extending from Las Tortillas, Tamaulipas, to Laguna de la Leche, at the extreme northern tip of Nuevo Leon. The line of the Mexican National Railway from Nuevo Laredo to Monterey passes through this area.

Topography

The region of the Salado Arch presents a diversity of topography so mantled by mesquite and chaparral as to appear confusing at first. However, taken as a whole, the topography is distinctive; and may be resolved into clear-cut, definite features.

In the eastern part of the area is a prominent line of hills or escarpment, the Ceja Madre, or, as it is more commonly called by the inhabitants, the Ceja Grande. With an abrupt descent on its southwest side, this escarpment is a remarkable physiographic element. It trends N. 40 degrees W. from near San Ignacio, Tamaulipas, to Huizachito, Nuevo Leon, on the Mexican National Railway, where it bends to a slightly more northerly course and continues in a northwesterly direction to Laguna de la Leche, which is at the north end of Nuevo Leon, lying partly in that state and partly in Coahuila. From San Ignacio to Laguna de la Leche is approximately 75 miles. North of Laguna de la Leche and beyond the Arroyo Agua Verde, Coahuila, the hills continue with more northerly trend, but here they are known as the Ceja Macha. South of the railroad between Nuevo Laredo and Monterey is a low range of hills known as the Ceja Chica. This ridge is less marked than the Ceja Grande but roughly parallels it and, like it, also presents an abrupt slope on one side. However, the scarp of the Ceja Chica faces northeast, looking directly into the southwest-facing scarp of the Ceja Grande. Between the Ceja Grande and the Ceja Chica nowhere more than about 10 miles apart, is an undulating plain, in striking contrast to the rugged bluffs on either side.

North of the railroad the topographic features are less distinct. The Ceja Grande persists, but the Ceja Chica dies out. Near Rodriguez, Nuevo Leon, is a flat plain through which the Rio Salado flows tortuously. Some 30 miles northwest of Rodriguez and just west of the Rio Salado rises the Sierra de San Juan or, as it is also called, de La Laja, a rounded, small, anticlinal mountain range, the type locality of the San Juan limestone.[3] East of the Sierra de San Juan on the other side of the Rio Salado is a low group of gravel-covered hills, the Lomas de San Antonio. In the region between the Ceja Grande and the Rio Salado is an extensive plain, surrounding the Lomas de San Antonio, which is of greater size and even more featureless and monotonous than the plain south of the railway. It is in large measure an old lake bed, remnants of which persist as grass-covered flats or "lagunas," the largest of which is Laguna de la Leche.

West of the general area from Las Tortillas to Laguna de la Leche, a bird's-eye view reveals various ranges of hills and mountains—the Sierra de Vallecillos, the Sierra de la Iguana, the Sierra de Lampazos, the Sierra Azul, and the Mesillas, the Mesa de Cartujanos. Beyond these are the jagged peaks of the Sierra Madre Oriental.

The Cretaceous-Eocene Contact and the Escondido Outcrop

In Texas the Cretaceous - Midway contact crosses the Rio Grande in Maverick County about four and one-half miles above the Webb-Maverick County line. Here at White Bluff the Escondido contact[4] with the characteristic fossiliferous, basal Eocene limestone may be seen. One mile downstream the Midway limestone occurs in the bed of the river opposite the Blesse ranchhouse on the Coahuila side.

Concerning the continuation of the contact in Mexico, Dumble states:

"The contact between the Cretaceous and Eocene in Mexico was first found on the Arroyo Caballero, a small creek which empties into the Rio Grande on the Mexican side some three or four miles north of the Maverick-Webb County line in Texas. From this point the contact runs southwest to the hills north of Azulejo, where it turns and runs a little east of south, crossing the Salado River near Rodriguez, the Sabinas near Piedras Pintas, and the Salinas at Ramones."[5]

Dumble clearly recognized the presence of uppermost Cretaceous or Escondido[6] beds north of the railway between Nuevo Laredo and Monterey, but he apparently did not recognize their presence south of the railroad; and, accordingly, drew the Cretaceous-Tertiary contact as crossing the Rio Salado near Rodriguez, Nuevo Leon. More detailed investigation has revealed the occurrence of extensive deposits of Upper Cretaceous age a short distance north and south of the railway and east of the Rio Salado almost as far as Las Tortillas, Tamaulipas.

There is in this territory between the Ceja Grande and the Rio Salado a series of beds of blue and yellowish shales, intercalated with thin brown sandstones and carrying large yellow-brown calcareous concretions or septaria, often shot through with calcite veins, which furnish in widely scattered places fossils of Upper Cretaceous age.[7]

In the light of this evidence, it appears certain that a belt of sediments of Upper Cretaceous age parallels the Ceja Grande both north and south of the railroad. They are the youngest Cretaceous in the area and have been considered by the author as a continuation of the Escondido beds mapped by Dumble north of the railway line.

Along the Rio Salado south of Rodriguez a series of olive, nodular shales with a considerable number of interbedded thin sandstones crops out, resting on a series of blue-black, nodular shales with a lesser number of interbedded thin sandstones, which are probably of Pappagallos age. The author does not feel justified in the light of his present knowledge in making a definite statement concerning the Escondido-Pappagallos contact, but it appears likely that the contact may approximately follow in this vicinity the Rio Salado.

Dumble[8] states that Wilcox and Carrizo beds occur near the mouth of the Arroyo Reparo a short distance northwest of Rodriguez, thus indicating a Tertiary transgression over the Cretaceous. The writer believes that the beds here exposed are Cretaceous, as evidenced by the lithology and foraminiferal fauna, rather than Tertiary.

The rocks forming the Ceja Grande are undoubtedly Eocene in age. The Cretaceous-Eocene contact should be placed practically at the foot of the Ceja Grande escarpment from Laguna de La Leche, Nuevo Leon, to near Rancho Zancudo, Tamaulipas, about six miles northeast of Las Tortillas, thus classifying as Cretaceous a large territory east of the Rio Salado, which

(Contiued on page 62.)

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[2]The field work upon which this paper is based was done by the writer in September and October, 1922, for the Humble Oil and Refining Company, Houston, Texas, in conjunction with Messrs. Paul Applin and Lyman Reed, of the Rio Bravo Oil Company, Houston. The writer examined the area further in April, 1923.

[3]E. T. Dumble, "Tertiary Deposits of Northeastern Mexico," Proc. Cal. Acad. Sci., Vol. 5 (1915), p. 173.

[4]For discussion of the Escondido-Midway contact on the Rio Grande with photographs, see L. W. Stephenson, "The Cretaceous-Eocene Contact in the Atlantic and Gulf Coastal Plain," Prof. Paper 90, U. S. Geol. Survey (1914), pp. 168-76.

[5]E. T. Dumble, op. cit., pp. 171-72.

[6]Ibid., pp. 169, 173 and 174.

[7]Upper Cretaceous fossils are found at the following localities: 1 mile north of Rancho El Aguila between El Saus and Las Tortillas, Gryphea vesicularis and Exogyra costata; about 12 miles west of north of Las Tortillas on trail to Rancho Escalera, many Gryphea vesicularis; on a low hill, the Loma del Lobo, about 8 miles southeast of Huizachito, Gryphea vesicularis; between Loma del Lobo and Rancho Escalera, Exogyra costata. The foregoing localities are all south of the railway, but north of the railway, on a hill about 10 miles northwest of Huizachito, numerous specimens of Exogyra costata are again encountered.

[8]Op. cit., p. 174.

PERSONAL MENTION-MEN YOU KNOW

H. **H. Madden,** at a recent meeting in Los Angeles of the United Oil Company, was elected vice president in addition to his previous title and duties of general manager. W. E. Dunlap, who recently came to the United Oil Company as head of the geological department, from the General Petroleum Corporation, was made assistant to Mr. Madden as general manager.

C. M. Coats, manager of the land and lease department of the White Eagle Oil and Refining Company with headquarters at Wichita, Kansas, spent the past week inspecting the company's leases and producing properties in Oklahoma and North Central Texas.

Andrew M. Strong, president and manager of the Pacific Oil Tool Company of Los Angeles, spent the past week in Corsicana and other North Central Texas oil field towns.

Larry Kennedy, Mid-Continent representative for the Reading Steel Casting Company, returned to Tulsa last week after an absence of more than a month during which time he visited the plants of his company at Reading, Pennsylvania, and Hartford, Conn.

A. D. Hudspeth, independent oil producer of Wichita Falls, is spending his vacation in Vancouver, Canada.

E. B. Wiggins, formerly in charge of the California branch of the Reed Roller Bit Company, and also known in oil field supply circles of Texas and California for several years, has entered business for himself at 1431 Santa Fe Avenue, Los Angeles, where he will be the exclusive distributor of several specialties.

L. S. Allen of the B. & A. Specialty Company of Tulsa, has been called to the home office of the United Alloy Steel Corporation at Canton, Ohio, to join H. W. Hunsiker of that company for a trip through the Mid-Continent territory.

R. E. Welsh, member of the statistical department of the Humble Oil and Refining Company, Houston office, is spending a two-weeks vacation on an outing on the Trinity river.

Walter O'Bannon, president of the Walter O'Bannon Company of Tulsa, manufacturers of oil field specialties, is leaving for an overland trip through the East with his family. Mr. O'Bannon expects to visit Detroit, Toledo, Cleveland, Buffalo, Albany, New York, Pittsburgh and Washington while away.

O. K. Martin and E. Wernet, well known men in the oil circles of Oklahoma, are being placed in charge of the Mid-Continent office of the Sargent Engineering Corporation of Los Angeles, which is to be opened in Tulsa in the near future. They will be located at 214 West First Street.

Billy Franke, General Manager of Jones Compania; Patrick M. Longan, Resident Manager Mexican Seaboard Oil Company; E. A. McKanna, Chief Geologist John Hays Hammond Interests and Dan Shonquist, Drilling Superintendent Isthmus of Tehuantepec.

George E. Failing of Garber, Oklahoma, president of the Garber Tool and Supply Company and representative in Oklahoma for the diamond core drill of the Sullivan Machinery Company, has opened offices in Tulsa at 505 Atlas Life Building.

W. F. Vane, manager of land and lease department for the Standard Oil Company, of California, and Reginald Stoner, assistant general manager of production for this company with headquarters at San Francisco, spent the past week inspecting the producing properties and wildcat holdings of the California Company, an operating subsidiary, in West Texas.

L. H. McBee, scout for the Sun Oil Company in West Texas with headquarters at San Angelo, has been transferred to El Dorado, Arkansas, to do duty in the Smackover field. McBee will be succeeded in West Texas by C. C. Pope, who has been in the Dallas office of the company for several years.

W. W. Fondren, vice president of the Humble Oil and Refining Company, sailed recently for Europe accompanied by his family, where he will spend his summer recreation.

W. B. Royer, scout for the Tidal Oil Company in the Ardmore, Oklahoma, district, has been transferred to the Texas division and assigned to the scouting and land department in the Cisco, Texas, district.

Rufus Pilcher, formerly employed in the statistical department of the Associated Oil Company, joined the United Oil Company July 1, to serve in the capacity of manager of statistics.

B. F. Lawrence, formerly purchaser for the Oklahoma Steel Castings Company, has acquired an interest in the Tulsa Brass Castings Company, 1032 Independence Street, Tulsa.

J. R. Long has been placed in charge of a new distributing house of the Norris Brothers Company, which was recently opened in Ft. Worth. The headquarters of the Norris Brothers Company is at Robinson, Illinois.

Walter J. Yarrow is now president of the International Oil Workers Union, succeeding H. A. Stickel, resigned, having been elected to this position at a meeting of Texas, Wyoming and California delegates June 27, at Taft, California.

V. V. Mordovin of Baku, Caucasian Russia, is heading a group of officials from that country on a tour through the oil fields and refineries of Mexico, and plans to extend the trip to the United States before returning to Russia. P. Kudelin, A. E. Rumkor, M. Moroshorikor, J. Serebrakor and S. V. Syamrikor, with the director of the tour, compose the personnel of the party. Included in this group are expert production men, refiners, a foundry man and a mechanic.

F. W. Dye, president and general manager of the Western Supply Company of Tulsa, is taking a two months rest in the lake country of Minnesota.

A July 4th picnic at Cotton Valley, Louisiana, given by Employees of the Louisiana Oil Refining Corporation to about 650 field men in the North Louisiana and South Arkansas district.

Harry F. Hinish, representative of the Shaffer Specialty Company of Tulsa, has just returned to his home in Tulsa after making a 3400 mile trip through Texas, Louisiana, Arkansas and Oklahoma fields in the interest of the Shaffer almetal sand reel support and other products of the company. The trip was made overland in a new car presented him recently by the Shaffer Company in appreciation of his five years continuous service with the company. On this trip Hinish visited the Big Lake field in Reagan County, going there from Archer County in North Texas by way of Breckenridge and Ranger, thence to Fort Worth, Houston, and back to Shreveport and Smackover. During his connection with the Shaffer Company Mr. Hinish has visited every field from Florence, Kansas, south to the Gulf Coast and west to the Pacific.

Roy L. Riner, who operates in the Wichita Falls district under the partnerhsip name of Riner and Bailey, left recently for the mountains of Colorado where he will spend the next two months.

John J. O'Brien of Chicago has been elected president of the Shaffer Oil and Refining Company, succeeding H. C. Cummins who has resigned.

Henry S. Fleming, a director of the Empire Trust Company of New York, has been elected chairman of the stockholders protective committee of the Middle States Oil Corporation, succeeding William Shiver, deceased.

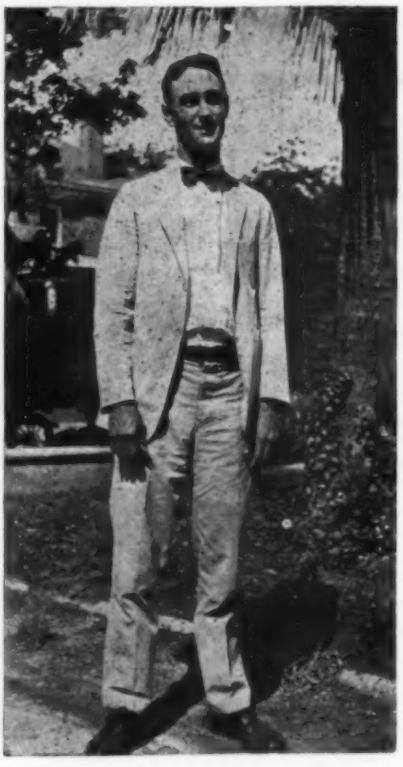
John R. Suman, vice president and general manager of the Rio Bravo Oil Company, Houston, returned late last week after a business trip of several days to Luling and San Antonio.

John Sandburg, president of the Sandburg Petroleum Company of Los Angeles, looked over the Utah territory recently. His company is now drilling a well at Cisco, Utah.

Gross Made Western Manager Of Gulf Publishing Journals

William V. Gross, effective July 6th, becomes West Coast representative of The Gulf Publishing Company, publishers of The OIL WEEKLY, The Refiner and Natural Gasoline Manufacturer and The Filling Station, succeeding W. E. Green, resigned. Western headquarters are at 1201 Haas Building, Los Angeles, California.

Mr. Gross goes to Los Angeles from the Houston office where he has been doing special editorial work for more than a year, readers of this publication being familiar with his contributions from the fields of the Texas Gulf Coast. Before his connection with The OIL WEEKLY he had experience with the newspapers and was for a time doing actual field work in the oil fields of North Texas. His popularity with his fellow workers in the Houston office and with those with whom he came in contact in connection with his work is well attested, and his employers feel that the California situation will be well taken care of for our readers under his direction. In addition to editorial work on The OIL WEEKLY, the manager of the West Coast office handles advertising for the three publications of the Gulf Publishing Company.



Wm. V. GROSS

Mr. Green's resignation is to accept an executive position with a local oil publication in Los Angeles and terminates a connection of several years during which The Gulf Publishing Company has kept step with the industry it serves in growth, and his resignation was accepted with regret. He was in Houston as associate editor of The OIL WEEKLY and assistant to the president and manager up until two years ago when he was sent to the Los Angeles office, which means that he is particularly well known to oil producers in Texas and California.

100 Barrel Well Extends Winfield Pool Quarter Mile

Wichita, Kansas.—With the completion of a new Peru sand well swabbing 100 barrels a day by the J. A. Hull Company of Tulsa, the Winfield pool of Cowley County, Kansas, has been extended one-fourth mile to the south and an additional 80 acre lease has been proven for the owners, who have approximately 1600 barrels daily production and 2600 acres of leases in the pool. The new well, which is in sand from 3322 to 3360 feet, is in the northeast corner of the southeast of the northwest of section 24-32-4. Five additional new wells are now being drilled by the Hull company.

Marland Oil Company added a new well to the Graham pool when its No. 5 Bower, in the northwest of the southeast of the northwest of section 10-33-3, Cowley County, was completed for a flow of 95 barrels per hour from the lime at 3490 feet and drilled to 3497 feet. Operators are expecting the well to flow at least 2000 barrels per day when it is finally completed. This new well is one location east of Marland's No. 4 Bower which came in making 3960 barrels per day.

Attention has been shifted to Western Kansas during the past week when the Russell pool reported six new wells. All six wells were drilled to the top of the sand and swabbed and each shows signs of being good producers when completed. The best test showed on the Valerius Oil and Gas Company's No. 3 Sutton in the southeast corner of the southwest of section 5-12-15w which swabbed 15 barrels per hour from the sand at 2800 feet. The Derby-Johnson & Streeter No. 2 Sutton, the Valerius Oil and Gas Company's No. 1 Sutton, the Valerius' No. 7 Ed. Oswald, the Oswald-Valerius' No. 6 and the Midwest Refining Company's No. 36 Oswald were the wells completed.

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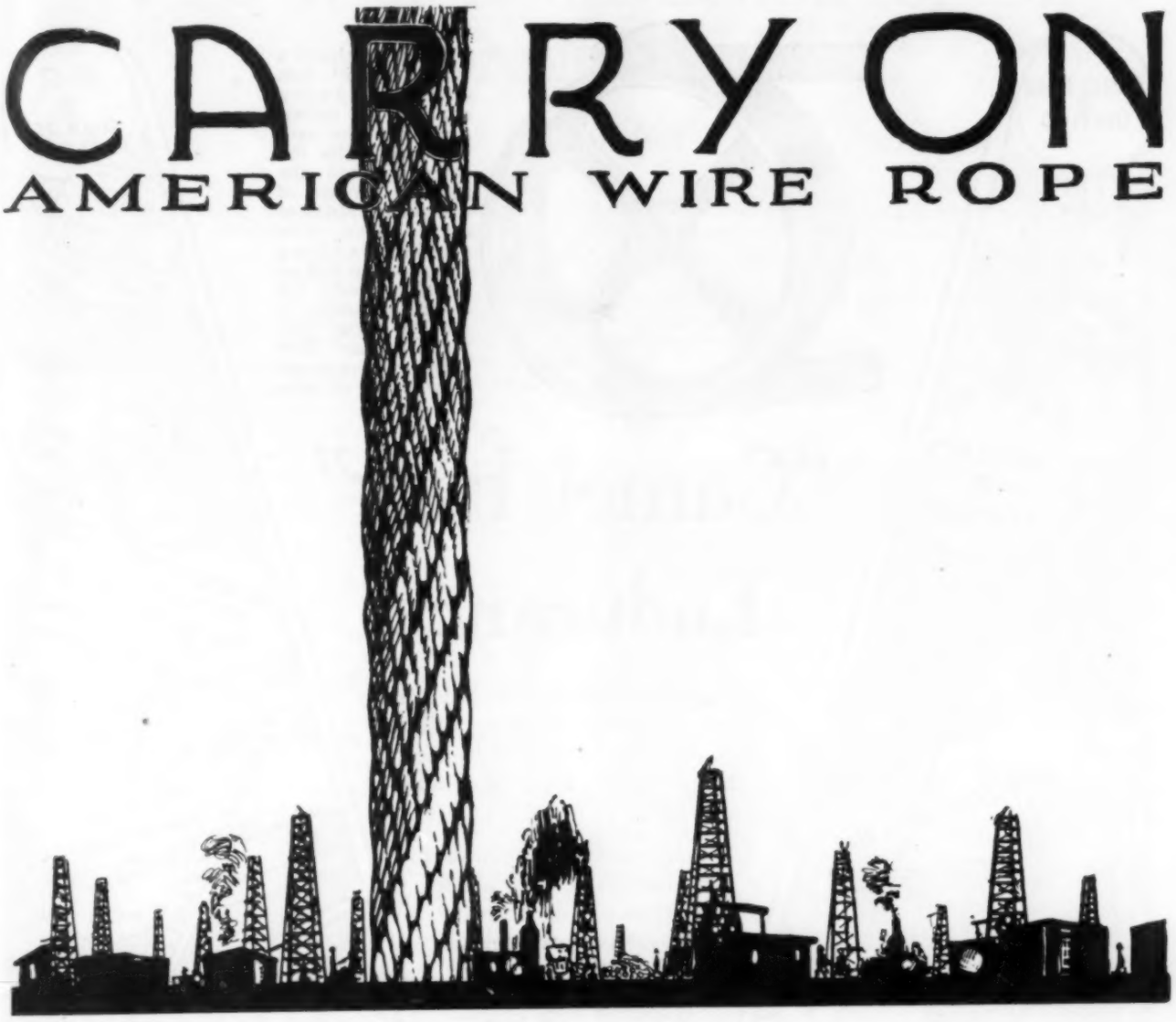

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Fire Wall Construction for Oil Storage Tanks

By H. H. Hall[1]
M. Am. Soc. C. E.

DURING 1924 larger quantities of petroleum and petroleum products have been in storage in the United States than ever before. Considering the amount of this oil in storage and its generally inflammable nature, the fire loss has been remarkably low.

Refined oils (which comprise by far the largest part of oil storage in or near cities and towns), when ignited simply burn quietly until they are extinguished or burned dry; but crude petroleums, and occasionally refined fuel oils, are liable to boil over while burning. In order to make the storage of these latter products as safe as that of the refined oils, it is necessary to surround the container with so-called fire-walls.

The service to be rendered by these structures is a peculiar one from an hydraulic standpoint, as their primary function is to withstand the single wave of oil thrown out by the "boil-over". In an effort to find the best possible design, the series of model tests here described was conducted, the outstanding result being a demonstration of the value of some form of flash-board or coping which will curl the advancing wave back on itself.

Introduction

The discovery of a number of extremely prolific petroleum pools in both Oklahoma and California during 1922 and 1923 has resulted, in spite of a rapidly growing market, in a considerable over-production of all forms of petroleum products. In round figures, oil in storage has increased since 1921 from 200,000,000 barrels to more than 500,000,000 barrels. This phenomenal growth has fixed the attention of many petroleum engineers on the design and proper protection of oil storage, with the result tnat a number of advantageous changes have been made. One of the most obvious changes, brought about by this study, has been a mineral increase in the size of storage units—both of the reservoir and the steel-tank type. Concrete-lined reservoirs have been built to contain more than 3,000,000 barrels (42 gal. each); and steel tanks holding 150,000 barrels per unit are not uncommon.

Among the changes looking toward better protection of the storage there has been a considerable extension in the use of fire-proof and vapor-proof roofs, and the addition of numerous devices which are intended primarily to prevent evaporation loss, but which incidentally improve fire protection by lessening or eliminating the escape of inflammable vapors.

Although in such carefully protected storage fires are a rather rare occurrence (particularly in California where the danger from lightning is small) the study of methods for guarding against the spread of fire has not escaped some scrutiny in connection with this general study of oil storage. Unfortunately, some of these products have a disconcerting habit of boiling over after burning for varying lengths of time. Recent studies have shown that these boil-overs are confined to crude, and, in some cases, to fuel oils.

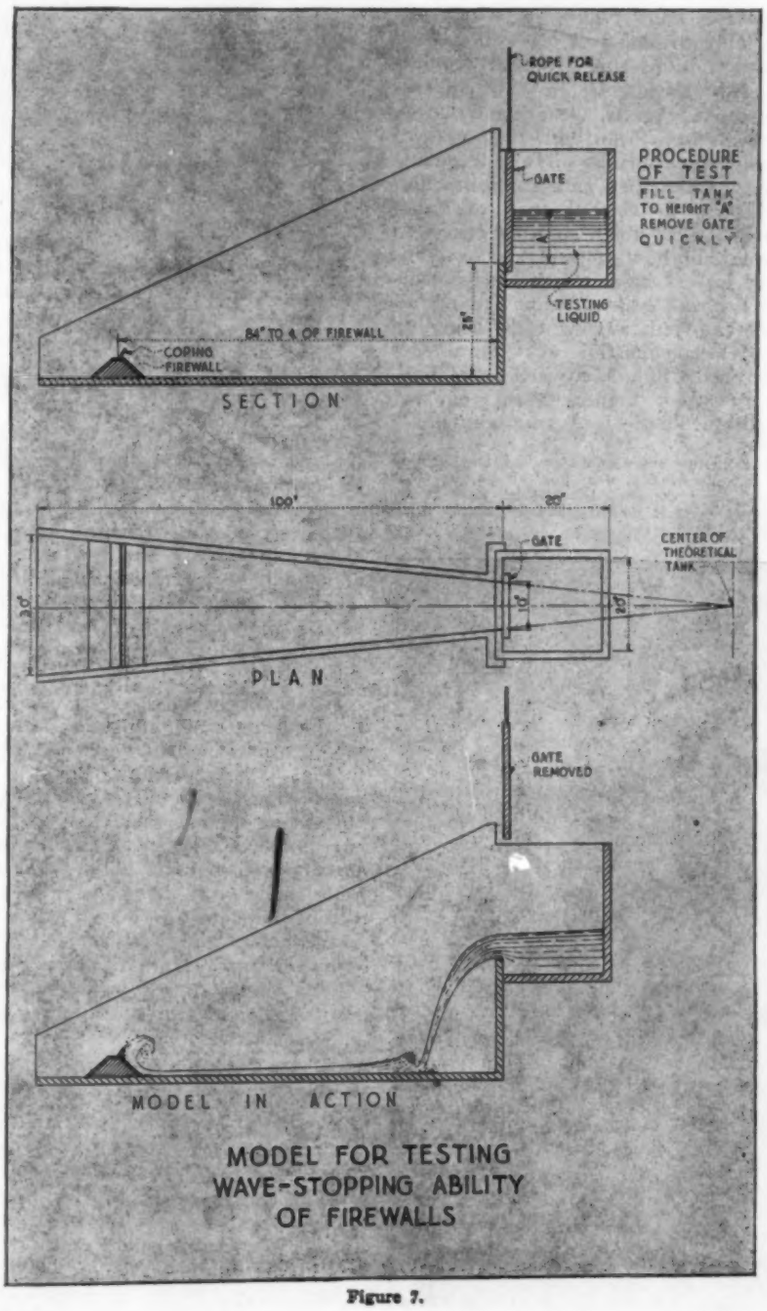

Figure 7.

[1]Chief Engineer Standard Oil Co., (California), San Francisco, Calif.

Note—Published in May 1925, Proceedings of the American Society of Civil Engineers, under the title, "Fire-Banks for Oil Storage", pp 721 to 747, and presented at the meeting of the Society in New York, June 3.

In order to prevent the possible spread of burning oil from structures containing either of these products, it is necessary to surround them with a fire-bank or wall of such dimensions that it will not be topped by the sudden wave-like advance of the oil which has boiled out. Aside from this requirement, the fire-walls need not, in general, be able to withstand much static pressure. The boil-overs, while sudden and violent, do not as a rule discharge any large part of a tank's contents; and although occasional tank leaks occur, the complete collapse of a full tank is so rare as to justify the designer in almost neglecting this possibility. The fire-wall problem is, therefore, primarily a question of stopping a single wave of high velocity.

Lack of knowledge as to which oils are likely to boil over, as well as lack of attention to this principal requirement of fire-wall design, has had two unfortunate results. Occasionally earth fire-walls have been built so low as to be topped by burning oil; and frequently city authorities and fire protection engineers, in the absence of exact knowledge as to what emergency to expect and how to meet it, have insisted on excessive clearance distances and fire-wall requirements around oil storage. With a view to clearing up the general question of fire-wall design both of the permanent and temporary types, Standard Oil Company of California decided to undertake a series of model tests. Ultimately, these included more than 1000 miniature boil-overs (using water for most of the tests) directed against 66 differently shaped walls and other obstructions.

[1]The energy represented by the elevation of the bottom of the weir box above the floor board is not considered available, since it appears as vertical velocity and is largely dissipated in shock.

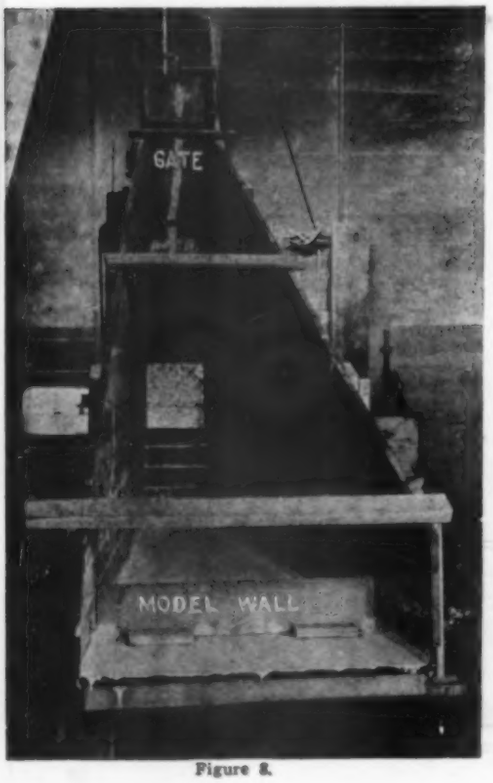

Figure 8.

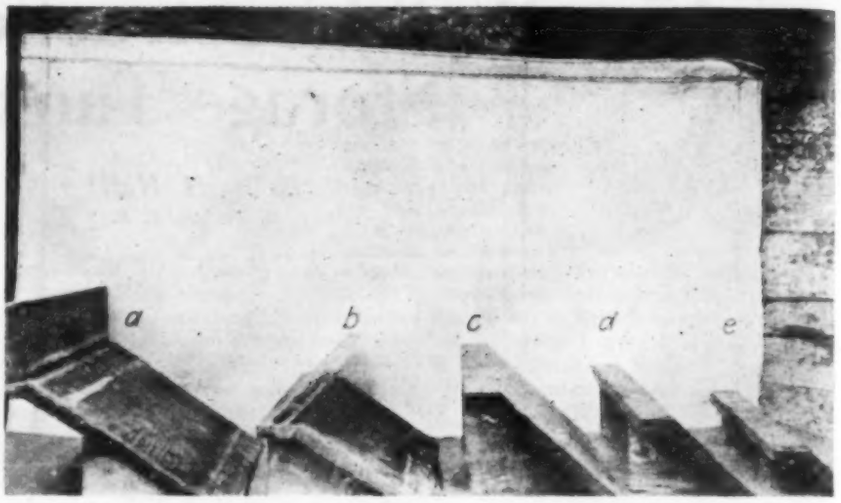

Figure 9.

Apparatus

The principal item of apparatus used was a wooden trough representing, at a scale of 1 to 14, a segment extending radially from the center of a tank 115 feet in diameter (see Figs. 1 and 2). At the tank end of this trough was placed a box from which the boil-overs could be discharged by jerking open a gate; the area of this box was made considerably larger relatively than that of a segment of the tank, with the thought that when a boil-over occurs, the frothing oil coming out of the tank is generally driven by the wind, so that most of it is concentrated on one side of the tank. The box was made adjustable so that the height from which the "spills" occurred could be varied, corresponding to different heights of tanks and refinery receiving "pans."

Model fire-walls were constructed, to the same scale, and placed at various locations in the trough. As shown in Fig. 1, the wall is at a distance corresponding to 100 feet from the tank, this being common practice for walls surrounding tanks on comparatively level ground. A majority of the tests were made with the walls in this position; but data were also obtained for locations (to scale) 50 feet and 20 feet from the tank. Model walls of the following shapes were tested:

1.—Earth walls with a 1 on 1.5 side slope;

2.—Earth walls with a 1 on 1 side slope (Fig. 3, right ;

3.—Vertical walls (Fig. 4, right ; and

4.—Modifications of the foregoing, using copings of various sizes and shapes (see Figs. 3 and 4).

Procedure and Results

1.—Preliminary Tests—Some preliminary experimenting was first done to determine (1) the way in which the gate releasing the water must be jerked open in order to obtain uniform results; (2) the criterion which should be used in judging the performance of different wall shapes; and (3) the effect of varying the height of the box from which the spill was discharged (Dimension A. Fig. 1). These tests are described in detail in the Appendix.

2.—Comparison of Standard Shapes. —The first main series of tests was run to compare the effectiveness of four of the most common shapes of wall now in use. The results are summarized by Curves 1 to 5, Fig. 5.

It will be noted that the curves for both shapes of earth wall, and for the plain vertical wall, are grouped close together, and have the same general shape and steep slope. Neither of these results is surprising, since all three shapes of wall depend primarily on height alone to stop the rush of water. This height, in turn, must depend approximately on the total energy of the oncoming stream, for the impact of the entire mass of water acts to push the topmost drops to a maximum height, with little loss in turbulence up to the time the spill takes place. As this total energy is approximately proportional to the square of the weir height, W^2, it might be anticipated that the necessary height of wall, H, would vary approximately with the square of W. As a matter of fact, Curve 1 can be closely represented by the equation $H=0.5\ W^{2.13}$.

In the case of the coped walls the situation is entirely different. Here, the principal part of the energy is expended in turbulence and shock when the coping turns the wave back on itself. The wall can be topped only when the energy of the oncoming stream is so great that all of it can not be dissipated, and the remainder is sufficient to lift some of the water over the wall. Under these circumstances, as indicated by Curve 5, the height of the wall needs to be increased only approximately in direct proportion to the height of the weir. This result indicates the efficacy of the coping as an energy absorber increases with the

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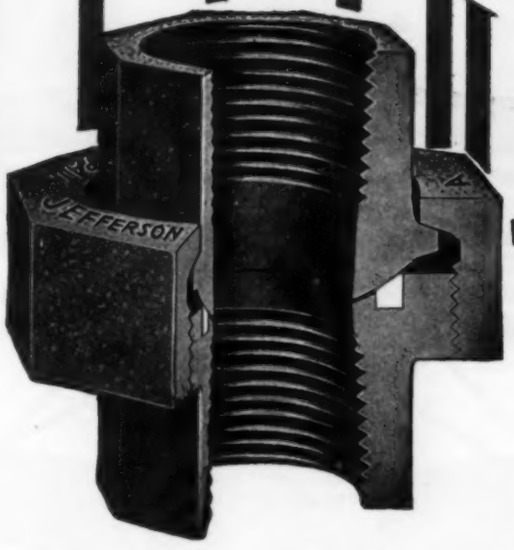

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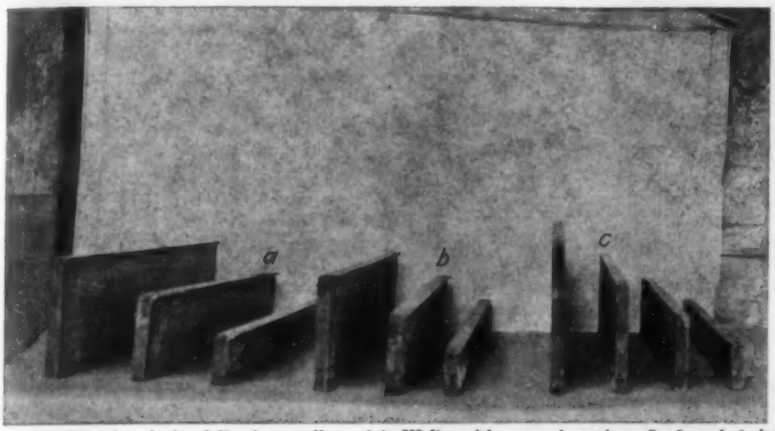

Figure 10—Models of the following walls: (a) Walls with curved coping, 7, 5 and 3 inches high; (b) Walls with straight coping 7, 5 and 3 inches high; (c) Plain straight walls, 10, 7, 5 and 3 inches high.

height of the wall and the violence of the wave—at least, over the range of heights covered by these tests.

Observation of the performance of the model coped walls during these tests showed that the effect of the coping is to turn all of the primary wave back inside the wall; in almost no case did any appreciable quantity pass over a coped wall in the first rush. The water turned back by the coping eventually piles up on that approaching from the tank until, after the velocity of approach is spent, there is for the instant a head causing flow over the wall. In any actual tank field a wave of oil would be free to spread out sideways, and it is probable that the secondary wave which tops the wall could not form so easily as in the experimental model where the water is closely constrained by the side walls.

The results indicated by these curves of Fig. 5 may be compared from two points of view.

(a) With a boil-over of given intensity, what height of each shape of wall is necessary to retain it completely? The answer is obtained by reading from the curves of Fig. 5 the heights of different walls that will stop a given "height of weir", for instance, 3½ in. A graphic comparison of the results is shown in the top row of Fig. 6. On account of the steepness of the slope of Curves 1, 2, and 3 of Fig. 5, a very considerable difference in height is observed between the walls of different shapes necessary to stop this 3½-in. discharge. Furthermore, it may be noted that a coped wall of less than half the height of the straight wall will be equally effective.

(b) With walls of the same height, what magnitude of boil-over will be stopped by different shapes? The middle row of Fig. 6 gives this comparison graphically for walls 5 in. high. When judged by this criterion, there is comparatively little difference between the effectiveness of the sloped walls and of the plain vertical walls; whereas the coped vertical wall is almost three times as effective as any other.

The outstanding feature of these two comparisons is the effectiveness of the coped wall. This is further emphasized by the detailed curves for the different walls shown in the Appendix (Figs. 17 and 18). It will be noted that the curves for walls with sloping sides (Fig. 17) ascend rather steeply, whereas the curves for the straight and coped walls (Fig. 18) are relatively flat. Considering, for example, the case of a 10-in. spill discharged against walls 5 in. high, it will be noted that 40 per cent of this spill passed over the 1 on 1.5 wall (Fig. 17), while under like conditions less than one-half of 1 per cent passed over the vertical wall fitted with a coping (Fig. 18). Thus, while the actual "dry-points" plotted on Fig. 5 are probably the most conservative criterion on which to judge the different shapes, it appears that a wall which permits not more than 1 per cent of the spill striking it to pass over may be regarded as satisfactory under most conditions. The curves on Fig. 19 have been plotted to compare the different shapes on this basis. It will be noted that the coped walls make an even more favorable showing in comparison with the walls having sloping sides.

3.—Methods of Reinforcing Standard Walls.

(a) Extension on Top of Wall.—A method that has been used to some extent for increasing the effectiveness of earth walls has been to place on top of them a vertical extension consisting of scrap steel plates. The models of walls with a 1 on 1.5 slope were equipped with such extensions 4 in. high (representing an actual height of about 5 ft., see model at left in Fig. 3). The results are plotted as Curve 6 of Fig. 5. It will be noted that this extension resulted in comparatively little increase in the effectiveness of the wall, judged on the basis of complete stoppage of the wave. However, in testing this model it was found that the extension markedly reduced the percentage of the larger spills that passed over the wall.

Observation of the behavior of this coped wall indicated that it would be desirable to tip the extension in toward the tank instead of leaving it vertical. This was accordingly done, with the results shown on Curve 8, Fig. 5. It will be noted that this greatly increased the effectiveness of the wall. (See also Figs. 7 and 8). Tests were run using extensions sloped at both 30 degrees and 45 degrees from the vertical. No appreciable difference in the results could be observed. As the 30-degree slope would probably be more convenient in actual practice, it is to be recommended.

This 4-inch "coping" proved so effective it was felt that an extension of half the height (still tilted back toward the tank) would give satisfactory results. This was tried, with the results shown by Curve 7 of Fig. 5.

It will be noted that even this small reinforcement materially increased the effectiveness of the wall, particularly at lower heights. The shape of this curve, indicating as it does that high walls will not stop such large boil-overs as low ones, is peculiar; but it has been carefully checked and found to be correct. The explanation seems to be that, with such a small coping, the long slope of the higher walls gives the force of the wave such a strong component in an upward direction that the coping is less able to break it up than

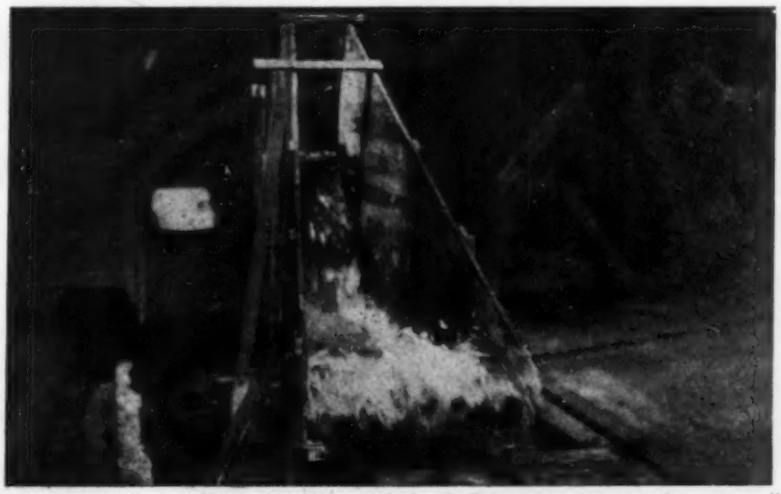

Figure 11—1½: 1 wall 5 inches high; 12 inches boilover, 45 percent passing over wall.

Figure 12—Same wall as in Figure 11, with addition of 4-inch coping sloped at 45 degrees toward tank, 12-inch boilover stopped.

when placed on a lower wall with a shorter approach.

In discussing the practical application of these "copings," it was suggested that if they were sloped back toward the tank at an agle of 45 degrees, or even 30 degrees, there might be danger that burning oil discharged against the base of the firewall in a preliminary "slop-over" would so warp the sheets that they would not be in shape to function at the time of the main boil-over. Tests were accordingly run using the shape numbered "9" on Fig. 5, in which the coping was placed in an almost vertical position, with a short lip at the top turned back at a somewhat sharper angle. Only one height of this shape was tried, as shown by a single point on Fig. 5, but it will be noted that this point is well to the right of the others, indicating that this shape was the most effective of those tested. (See also Figs. 9, 10, and 11; the "wings" shown in Fig. 11 were used in testing the other coped walls, as it was felt that the corner effect observed in these models would not obtain in practice and tended to obscure the real effectiveness of the different walls). From the results obtained in the detailed Sketch No. 9, Fig. 5, would completely turn back the wave from the most severe boil-over likely to occur in practice, provided the wall is 50 ft. or more from the tank.

It was next suggested that for reinforcing division walls between two tanks, a vertical coping with a horizontal lip on top, as shown in Sketch No. 10, Fig. 5, would be desirable. Tests were accordingly made on a model of this shape, using four different widths of lip. The result obtained with a ½-in. lip (corresponding, for the scale of model used, to a 7-in. extension on an actual coping) is plotted as the single point marked "10" on Fig. 5 It will be noted that this shape also proved very effective, so that a division wall of this shape with a 1-ft. plate at the top of the coping (giving a 6-in. lip on each side) can be counted on to turn back any boil-over, if the wall is at least 75 ft. from the tanks protected. Where conditions require that the wall lie closer to the tank, a wider lip would be desirable—perhaps with a maximum projection of 1 ft. on each side if the wall is within 40 or 50 ft.

(b) Auxiliary Walls Close to Tank. —A study of the behavior of the waves created in those different tests suggested that by breaking the force of the wave just as it struck the ground, the effectiveness of the firewalls would be increased. Tests were accordingly made, first, with a small vertical wall placed 30 in. from the spill-box (corresponding in actual size to a vertical wall a little more than 2 ft. high, approximately 35 ft. from the tank shell.) The results are shown in Curve 11, Fig. 5.

It will be noted that this small auxiliary wall had an important influence in increasing the effectiveness of the different types. Comparing Curves 11 and 7 (Fig. 5), it will be noted that in the case of the higher walls the same 2-in. strip used as a vertical wall near the tank was almost twice as effective as when placed as a coping on top of the wall. Since the auxiliary wall 35 ft. from the tank would be only about 60 per cent as long as that 100 ft. away, the considerably smaller quantity of material needed for the closer wall is a further argument in its favor.

When 4-in. strips were used (corresponding approximately to a 5-ft. steel plate), this superiority of the closer

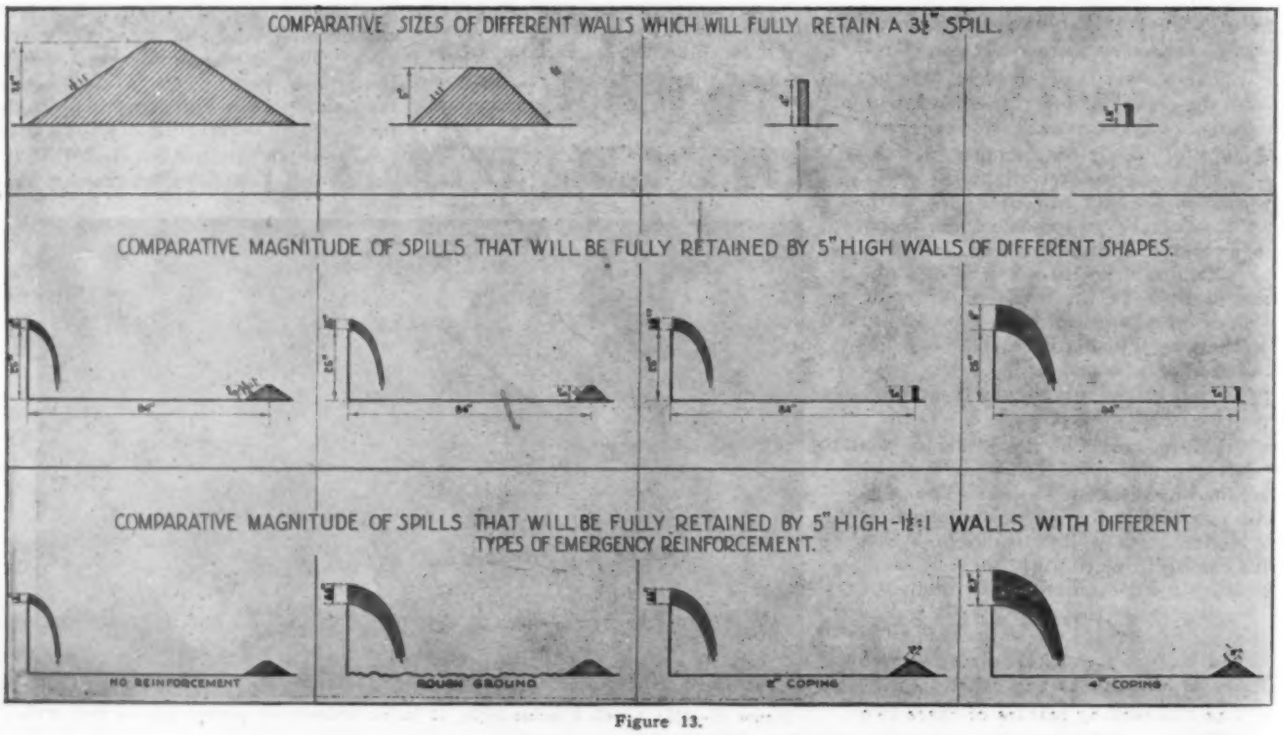
COMPARATIVE SIZES OF DIFFERENT WALLS WHICH WILL FULLY RETAIN A 3½" SPILL.
COMPARATIVE MAGNITUDE OF SPILLS THAT WILL BE FULLY RETAINED BY 5" HIGH WALLS OF DIFFERENT SHAPES.
COMPARATIVE MAGNITUDE OF SPILLS THAT WILL BE FULLY RETAINED BY 5" HIGH-1½:1 WALLS WITH DIFFERENT TYPES OF EMERGENCY REINFORCEMENT.
NO REINFORCEMENT
ROUGH GROUND
2" COPING
4" COPING

Figure 13.

Tret-O-Lite Does Not Injure Pipe Line or Tanks

TRET-O-LITE contains no mineral acid, nor other corrosive ingredients that would in any way injure your PIPE LINE or STORAGE TANKS.

Interior walls of your PIPE LINE or STORAGE TANKS will be found unaffected by the continued use of TRET-O-LITE over a period of years. This simple, most economical and safe method for treating cut oil and tank bottoms, merits your investigation.

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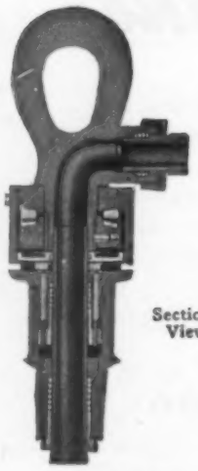
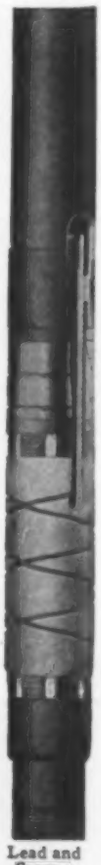


Sectional View



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wall was not so marked as far as stopping the wave was concerned (compare Curve 8 with Curves 13 and 15), but, of course, its advantage in requiring less material still remains.

Placing the auxiliary wall close to the tank either in a vertical position or inclined back toward the tank, seemed to make comparatively little difference. Curve 12 applies to a 3-in. vertical wall, and Curve 14 to the same wall inclined at 45 degrees. Curves 13 and 15 give a corresponding comparison between 4-in. walls.

Curve 16 (Fig. 5) brings out the fact that the auxiliary wall close to the tank is just as much of a help to vertical firewalls as it is to those inclined to a 1 or 1.5 slope. A 2-in. auxiliary wall close to the tank resulted in moving Curve 3 (for the plain straight wall) out to the position of Curve 16, which shift strikingly emphasized the effectiveness of breaking the force of the wave by having an auxiliary wall close to the tank.

The bottom row of Fig. 6 gives a graphical comparison of the effectiveness of the different types of reinforcement discussed. As indicated, the main firewall in each of these tests was a 5-in., 1 on 1.5 wall. Comparison of the sizes of the spills mentioned, with that which the same wall without any reinforcement will stop (shown as the first figure of the middle row) emphasizes the value of some type of reinforcement to ordinary 1 on 1.5 walls.

(c) Borrow-Pits, Etc., Close to Tank—It was next decided to see whether a pit dug around the base of the tank in such a way that the falling wave would strike the ground surface approximately normally (with the idea of creating maximum turbulence), would produce an effect similar to that of the vertical auxiliary walls. The floor of the model trough was modified to provide such a pit 3 inches deep; the results are shown as Curve 3 of Fig 12. The plain 1 on 1.5 wall is also plotted for comparison. It is evident that the value of the plain wall has been only slightly increased by this arrangement.

It was then suggested that a low earth wall built just outside the pit might increase its effectiveness. Curve 4 of Fig. 12 (which coincides with Curve 3) gives the results for a pit 2 in. deep with a 2-in. wall on the outside. This indicates that the wall on the outside makes a 2-in. pit as effective as a 3-in. pit without the wall; and, as this would be the logical shape in which to place the dirt, it is recommended. The slope toward the tank should be made as steep as soil conditions permit.

(d) Borrow-Pit at Wall.—During the progress of the tests interest was expressed regarding the possible effectiveness of a borrow-pit on the tank side of an earth wall. The floor of the model trough was accordingly modified with results as indicated by Curves 1 and 2, Fig. 12. It will be noted that the pit next to the wall proved somewhat more effective than the one near the tank already described in Section (c) (compare Curve 1 with Curve 3), and considerably increased the effectiveness of a small coping at the top of the wall (compare Curve 2 with the dotted curve for "1 on 1.5 wall with 2. in. at 45 degrees"). This is a further argument in favor of using a coping on top of 1 on 1.5 walls; for there is generally a borrow-pit on the tank side of such walls.

(e) Rough Surface Between Tank and Wall.—In actual practice the space between the firewalls and tank is sometimes cleared of weeds with a road scraper, which leaves the surface quite smooth; in other cases, the weeds are simply plowed under, leaving a rough surface.

With a view to determining the influence of such a rough surface on a boil-over wave, a strip of tarred paper was laid on the bottom of the model trough, into which was bedded gravel approximately ¼ in. in diameter and less. To scale, these bits of gravel simulated clods about 4 in. high. The results of the tests with this equipment are shown as Curve 5 on Fig. 12. It will be noted that the gravel had a marked effect in breaking up the force of the wave, and this enabled a wall of given height to stop a much greatder spill than it could if the intervening space were smooth (compare Curve 5 with the dotted curve "Plain 1 on 1.5 Wall").

(f) Toe Cut-Off 1 on 1.5 Walls—In cleaning up around certain firewalls, it has been the practice to cut off the toe of the wall, on the tank side, leaving a vertical face about 1 ft. high at the base. Tests were requested to determine the influence of this change on the effectiveness of the wall. Curve 6 of Fig. 12 shows that, as in the case of borrow-pits, this expedient, while it does move the curve in the right direction, adds only slightly to the effectiveness of the plain wall.

(4)—Effect of Placing Walls Close to Tank.

(a) Wall 50 ft. from Tank.—The model walls were next set in a position corresponding to a distance of 50 ft. from the tank shell. The results are summarized by the curves on Fig. 13. It will be noted that the different shapes showed, in general, the same

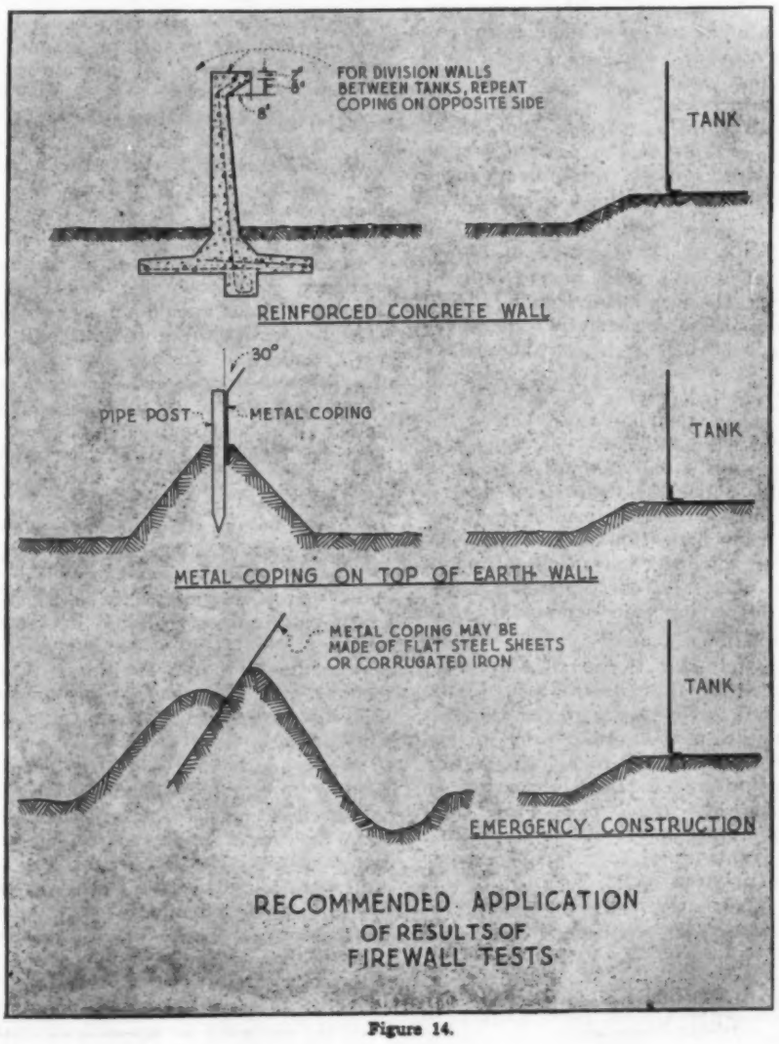

FOR DIVISION WALLS BETWEEN TANKS, REPEAT COPING ON OPPOSITE SIDE
TANK
REINFORCED CONCRETE WALL
30°
PIPE POST
METAL COPING
TANK
METAL COPING ON TOP OF EARTH WALL
METAL COPING MAY BE MADE OF FLAT STEEL SHEETS OR CORRUGATED IRON
TANK
EMERGENCY CONSTRUCTION
RECOMMENDED APPLICATION OF RESULTS OF FIREWALL TESTS

Figure 14.

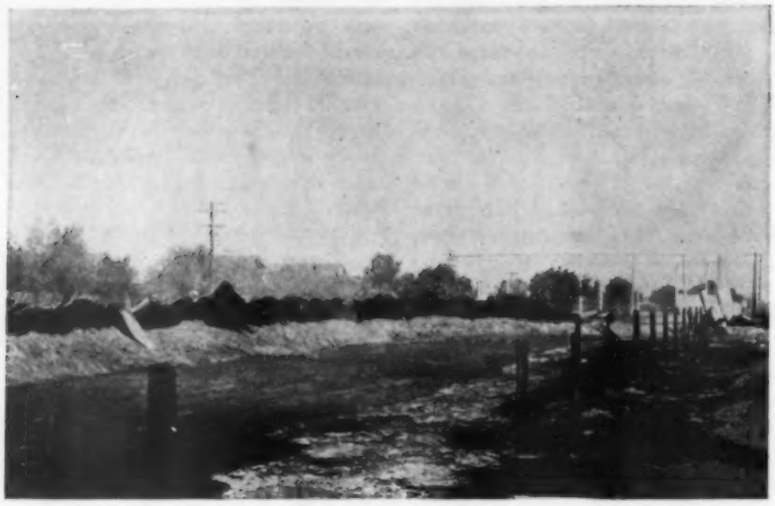


Figure 15—Emergency wall used in actual fire.

relative behavior as in the previous tests.

At this closer distance the effectiveness of the vertical wall, as compared with the 1 on 1.5 wall, was relatively greater than at the 100-ft. spacing. On the other hand, the coping on top of the vertical wall did not result in such a marked increase in its effectiveness as had been previously observed. This led to the suggestion that a heavier coping might be desirable; a comparison of Curves 3 and 4 of Fig. 13 indicates that doubling the width of the coping increased the effectiveness of the wall by about 20 per cent. The coping on top of the 1 on 1.5 wall showed the same marked effectiveness as in the previous tests (Curve 5 of Fig 13).

b) Wall 20 ft. from Tank.—When the model walls were moved in to a distance (17 in.) corresponding to 20 ft. from the tank shell, the differences in the behavior of the various shapes were not so marked. The curves on the upper half of Fig 14 show the results when the boil-overs were discharged from the 25-in. height used in previous tests (corresponding to a 30-ft. tank); and the data on the lower half summarize the results of a few tests in which boil-overs were discharged against low walls from a height of 8½ in., corresponding to the 10-ft. "receiving pans" commonly used in refineries.

It is felt that the small differences indicated by these tests (Test 4 (b)) are attributable mainly to the fact that when the model walls were moved close to the tank, there was hardly room for wave action to occur. In practice, of course, these conditions would not hold. It seems likely that the advantages of copings observed in those previous tests where the wall was far enough away from the tank for wave action to develop, would make themselves felt to practically the same extent where actual walls are within 20 ft. of the tank.

5.—Reservoir Fire Walls.—In connection with some contemplated strengthening of reservoir fire-banks, tests were requested to determine the influence of a small mound and borrow-pit at the toe of a reservoir slope.

As was the case with the vertical auxiliary walls near the tank, described under Test 4(b), the mound at the base of the slope served to break the force of the wave to such an extent as to enable a given height of main wall to stop a much larger wave; or, conversely, with a given intensity of boil-over to stop, the main wall can be made considerably lower if the auxiliary mound is built at the top of the slope.

Since a relatively small quantity of earth is required to build this mound (both on account of its low height and small radius as compared with the main fire-wall), the total yardage of earth required to obtain a given degree of protection is 20 or 30 per cent less when the mound is used than when the main wall is built high enough to stop the wave without any auxiliary protection.

6.—Tests With Foam Solutions.—In the tests previously described, water was used on account of its convenience. However, in discussing some of the results, it was suggested that it would be interesting to use a liquid that froths and expands as it pours out of the tank, thus simulating conditions when burning oil boils over. To accomplish this, it was decided to use weak foam solutions.[4]

It was found that when these solutions were suitably diluted, the waves produced seemed to act in much the same way as a wave of frothing and steaming oil. The different shapes of wall were found to have essentially the same relative effectiveness as when water was used. It is felt therefore that the results of the water tests give a reliable indication of the relative value of different types and heights of wall for stopping waves of boiling oil.

[4]Basic and acid liquids used to produce foam for extinguishing oil fires, see U. S. Bureau of Mines, Bulletin No. 170, p. 10.

Conclusions

The outsanding result of these tests (which comprised a total of more than 1000 "boil-overs" discharged against 66 different model walls or combination of walls) is the value of some form of velocity or energy "killer" other than the mere height of the wall. Probably the most important of those experiments tried is the coping, although a rough surface between the tank and the wall and the auxiliary walls and pits will probably each have a place.

The practical application of this principal to typical oil-storage conditions is illustrated in Fig. 15. Several concrete walls of the recommended form have already been built. On most of these walls, however, the coping has been made only about 4 inches wide. The tests have indicated that a heavier coping—say, 8 inches wide—will add considerably to the effectiveness of walls which are fairly close to tanks; and as this increase in the width would add a negligible amount to the cost, it would seem desirable.

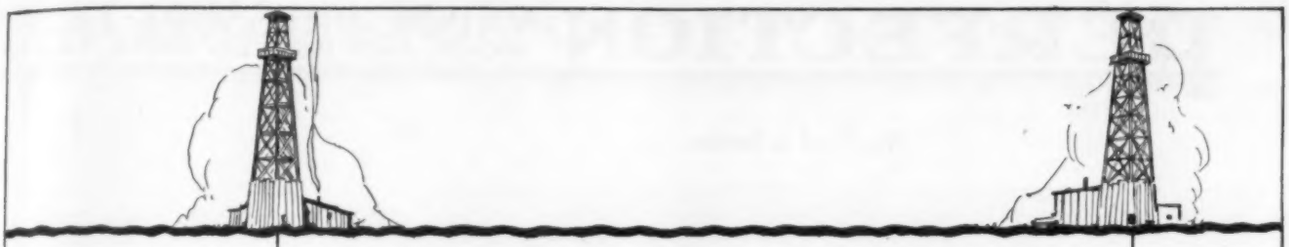
As indicated by the curves on Fig. 13, a wall five feet high (model height, 4.3 inches) with an 8-inch coping is as effectual as a plain wall 9.6 feet high (model height, 8.2 inches). A five foot coped wall of standard T-shape will require about one-fourth cubic yard of concrete per linear foot at $30 per yard; this would cost $7.50 per linear foot. A wall, 9.6 feet high, would contain about 0.6 cubic yards, costing about $18. From these figures it is apparent that a given degree of protection for turning back a wave will cost only about one-half as much with a coped as with a plain wall.

An even greater economy is effected by the use of copings on earth walls. Over these, on account of their sloping sides, waves have a tendency to pass readily; but as soon as a 3 or 4-foot coping is placed at the top, a wall 5 feet high becomes much more effective than an uncoped wall 15 feet high. (See curves on Fig. 5.) Where scrap steel plates are available for building copings of the general form shown on Fig. 15, the cost will be very low. Even where new galvanized-iron sheets have to be purchased, the cost figures indicate that a given effectiveness can be obtained with a coped wall at about one-quarter the cost of the high earth wall.

Where local conditions permit, a low vertical auxiliary wall about 30 feet from the base of the tank is an even more economical method of increasing the effectiveness of the main wall. This auxiliary wall breaks the force of the wave and robs it of the energy required to carry it over a main wall that it could otherwise easily surmount. On account of the smaller radius of this auxiliary wall, only about 60 per cent as much material is required to build it as for the coping on the main wall that would have equivalent effect.

A small mound 2 or 3 feet high with

(Continued on page 89.)



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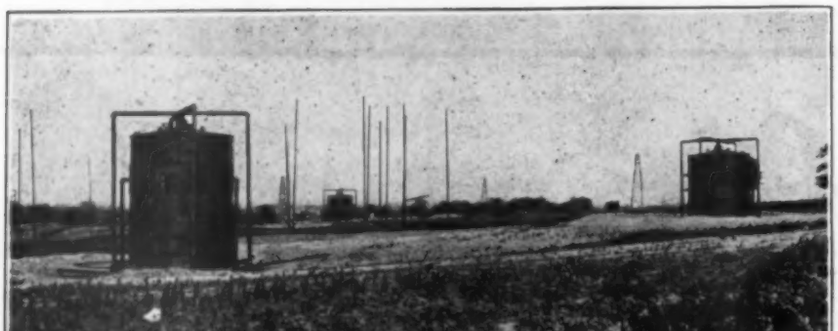

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Survey Wants Practical Test of Recovery Method

IN preparation for the day, possibly near at hand, when the output of the oil fields of the United States will fail to meet our growing oil requirements, the Department of the Interior, through the Geological Survey, which is concerned with the geology of oil fields, has been carrying on studies of the mode of occurrence of the oil in the oil sands and other rocks. The principal object of these studies is to learn the conditions under which the oil is held in the pore spaces between the fine grains of an oil sand and in the capillaries of the oil-containing rock, and thus to help in the discovery of some method, either chemical or physical, by which the oil may be freed from pore and capillary space and made to flow in larger volume into the wells—in other words, the studies are directed toward the recovery of a larger proportion of the oil that is known to be present in the ground.

In every oil field more or less of the oil is left in the ground unrecovered. In the Bradford-Olean region of Northwestern Pennsylvania and Western New York, the Geological Survey has found that perhaps 15 per cent of the oil flowed from the sand into the wells and was recovered before the yield became too small to pay for pumping and the fields were abandoned. In portions of the abandoned area, fresh water, let down in the wells from a sand about 800 feet above the oil sand, is made to "drive" out an additional yield, amounting under favorable conditions to as much as 20 per cent of the original oil content. Tests of drill cores and cuttings indicate that about 60 per cent of the oil is still left in the ground after the "water drive" has done its best. Advances in the price of oil, which are likely to follow shortage in the domestic supply, will encourage the application of special methods of oil recovery if means that can be used profitably are known.

As the result of examinations and tests of many oil sands, especially the Bradford sand, and by beans of experiments with various acid and alkaline solutions, Dr. P. G. Nutting, a physicist of the Geological Survey, finds that the water associated with the oil or used to force the oil by water drive from the sands, becomes contaminated within a short time by the solution of a small amount of oil, which has been determined in connection with other work to amount to about two one-hundredths of 1 per cent. Water so contaminated has lost much of its power to separate the oil from the sand, and the recovery is therefore greatly lessened. On the other hand, laboratory tests based upon samples of sand saturated with Bradford oil prove that a large part of the oil content can be driven out by ordinary fresh water if the oil and water are in contact less than 48 hours. A drive sufficiently rapid to be completed during so brief a period of contact is, of course, impossible in an oil field where the water travels through the sand but two inches a day and the wells are about 150 feet apart. Hence, the problem arises how to prevent the contamination of the water or counteract its effects while, at the same time, loosening the grip of the oil on the sand so that it may be more completely flushed from the pores and capillaries and driven onward toward the wells.

From samples of sand that have been saturated by Bradford oil in the laboratory, the oil may be flushed readily and with relative completeness, even when the movement of the water through the sand is slow, if a salt of the sodium carbonate type is dissolved in the water used for flushing. Soda ash, washing soda, and in an inferior degree water glass (sodium silicate) and borax have yielded very promising results in the samples tested. Accordingly, it appears possible that the same or similar solutions may cause much larger recoveries of oil than are now won in the oil fields, provided the solution works as well, or even half as well, when commercially tried in the deeply buried oil sand.

Washing soda is very soluble and is inexpensive. The wells should be charged liberally with it at the start of a water drive and at intervals thereafter. Geological Survey tests indicate that the possibility of clogging a drive by an overdose is very remote. However, it is not yet known whether such a solution will yield good results on a commercial scale. Hence the survey, while calling the attention of the oil men to the laboratory experiments, warns the operators that, although the method deserves field trial, it remains to be seen whether this method will work with equal success or with any success whatever where, in the long underground spaces between wells, reactions or difficulties not yet foreseen or understood may spell failure. Therefore, while the survey offers no assurance that the tests will be successful, it recommends that a careful trial be made by some company which is in a position to make the tests under favorable circumstances and which is fully able to stand any losses consequent to failure if the method does not work successfully under practical field conditions.

Paint Bulletin

Sherwin-Williams metal protective finishes for the petroleum industry are completely described in an attractive bulletin recently published by the company.

Every product manufactured by the Sherwin-Williams Company that is applicable to the oil industry is featured in the bulletin. Formulae are included showing the composition of each of the coverings. There is also a painting guide for the petroleum industry.

Copies of the bulletin can be had from the Sherwin-Williams Company, Cleveland, Ohio.

Mexican Seaboard tug "Toteco" unloading drilling material at San Carlos, 62 kilometers up the Uzpanapa river from Puerto Mexico

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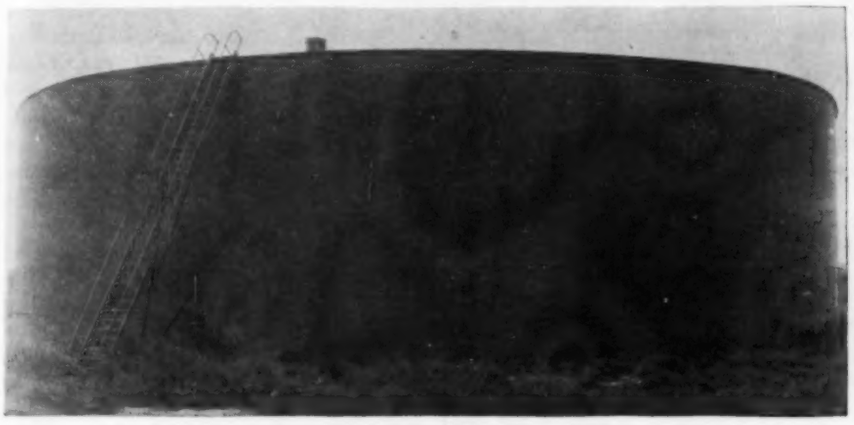
Say you saw it in The Oil Weekly

Aluminum Paint Resists Evaporation Best, Bureau Test Proves

Comparative losses when using paints of different colors gives aluminum much the best of the argument

OTHER conditions being identical, the cooler the inside of a tank, the less will be the evaporation of the crude oil in it.

The nature of crude oil does not permit building storage tanks absolutely vapor proof. The tank must "breathe." This means the equalizing of pressure by means of vents, valves and devices made for the purpose.



A Fifty-five—with a gas-tight top, proper vents and regular painting, it will make money for a long time.

The cooler the contents the narrower the range of "breathing," which is another way of saying—the cooler the crude oil the less the evaporation.

That is the condition which renders the tank covered with aluminum paint less susceptible to evaporation. Although this has been known to paint experts and to chemists and engineers in the oil industry for many years, it has come to the whole producing branch of the oil industry with full force but recently and that through the publication of the paper herewith presented.

Ludwig Schmidt, associated petroleum engineer of the United States Bureau of Mines, conducted the experiment in co-operation with the State of Oklahoma on four tanks filled with Burbank crude oil. His experiment covered a year and proved conclusively that aluminum paint is the more desirable on the score of preventing evaporation.

Aluminum paint differs from other paints in that aluminum is used for the pigment rather than lead, the common ingredient of paints. Because of its color aluminum reflects light and heat. It is a metal which does not absorb or transmit heat readily. These factors give it the nature to keep the contents of a crude oil tank cool.

Even before the Bureau of Mines report was published, engineers of the Pure Oil Company had satisfied themselves as to the desirability of aluminum paint. The company has adopted aluminum paint for both crude oil and refinery storage and this paint is now being applied at the Muskogee refinery.

The pictures, herewith, were made while refinery tanks were being painted. Since the process of painting these is identical with that of crude oil tanks, details will apply in either case.

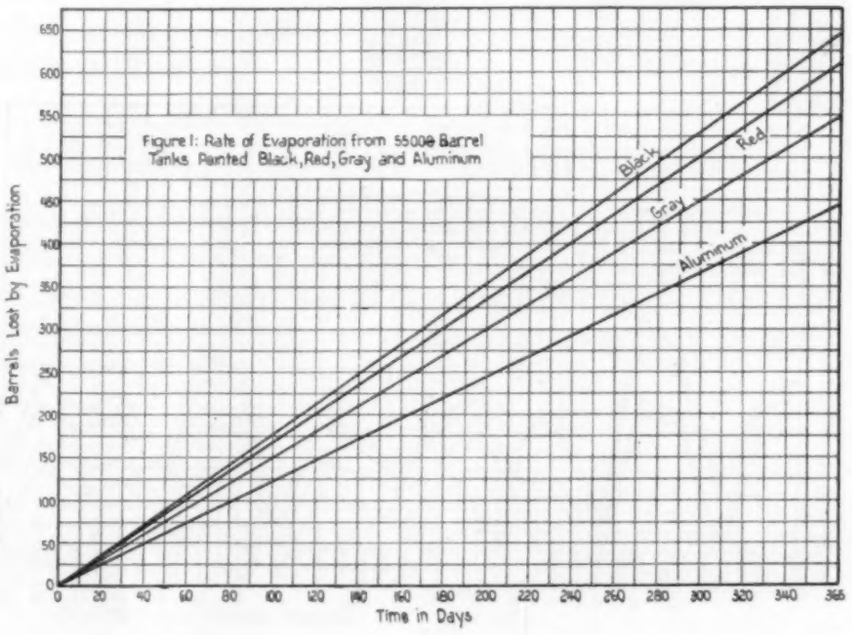
All tanks being painted at this plant are old and some have been painted several times. The painting consists of preparation of the metal and painting with compressed air.

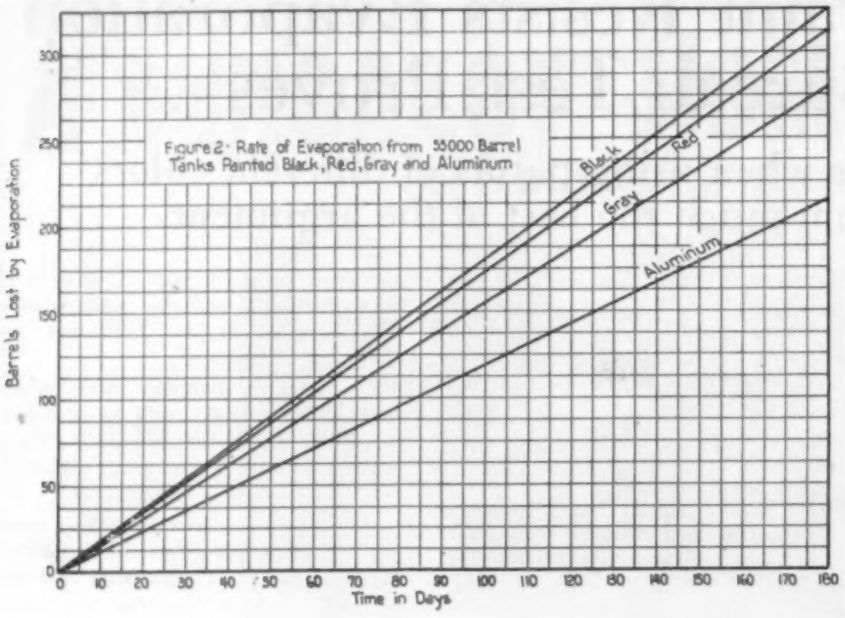
First the tanks are gone over with metal scrapers. These are used to remove old paint, rust and scale. After being scraped, a steel brush is used over the whole surface to remove any remaining small particles.

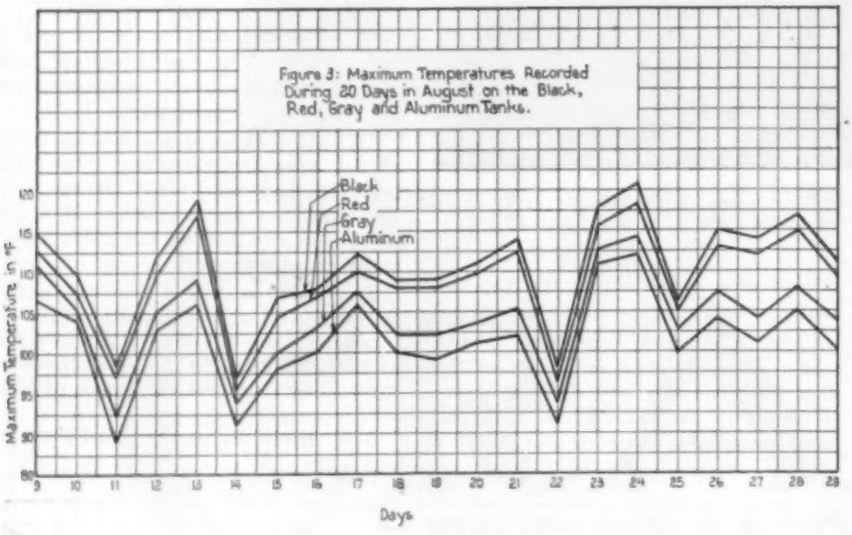
Two coats of paint are used on tanks of the Pure Oil Company. The first is a red lead coat, which serves as a rust inhibitive metal primer. It is applied with compressed air, a Matthews spray gun being used.

The paint is mixed for use under pressure and applied under pressure, furnished from the central compressor of the refinery. Six hours is required for putting one coat on a tank of 5000 barrels capacity.

After the red coat has dried the alu-







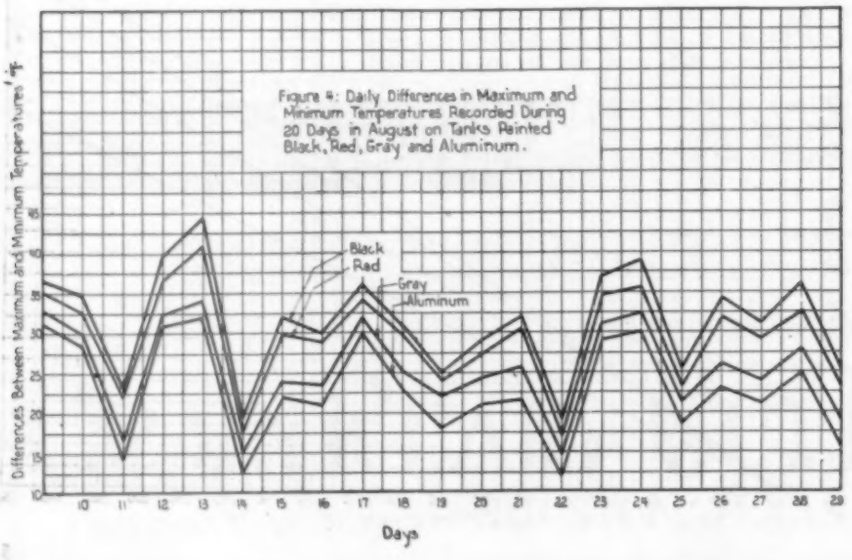


Figure 4: Daily Differences in Maximum and Minimum Temperatures Recorded During 20 Days in August on Tanks Painted Black, Red, Gray and Aluminum.
Black
Red
Gray
Aluminum
Differences Between Maximum and Minimum Temperatures °F.
Days

minum coat is applied with the spray gun. The Pure Oil method is to mix the aluminum paint in small quantities and to apply it immediately, as it is believed this gives it a better chance to hold.

The report of the investigation of the United States Bureau of Mines, showing the evaporation resisting qualities of an aluminum paint follows:

"Investigations conducted by the Bureau of Mines pertaining to the reduction of evaporation losses of petroleum have shown that such losses may be reduced 70 to 80 per cent by the use of vapor-tight tanks equipped with vacuum and pressure relief valves, and vapor-tight thief hatches. Additional studies have shown that it is often economical to supplement this type of construction with other measures that will reduce evaporation losses still further. Water cooling systems, insulation and light colored paints are the measures most often used in connection with vapor-tight tanks.

"Painting with light colored paints probably is employed in the greater number of cases. On account of the cost of insulation, or of installing water cooling systems, the use of these methods are restricted to tanks containing gasoline or crude petroleum with a very large content of low boiling fractions.

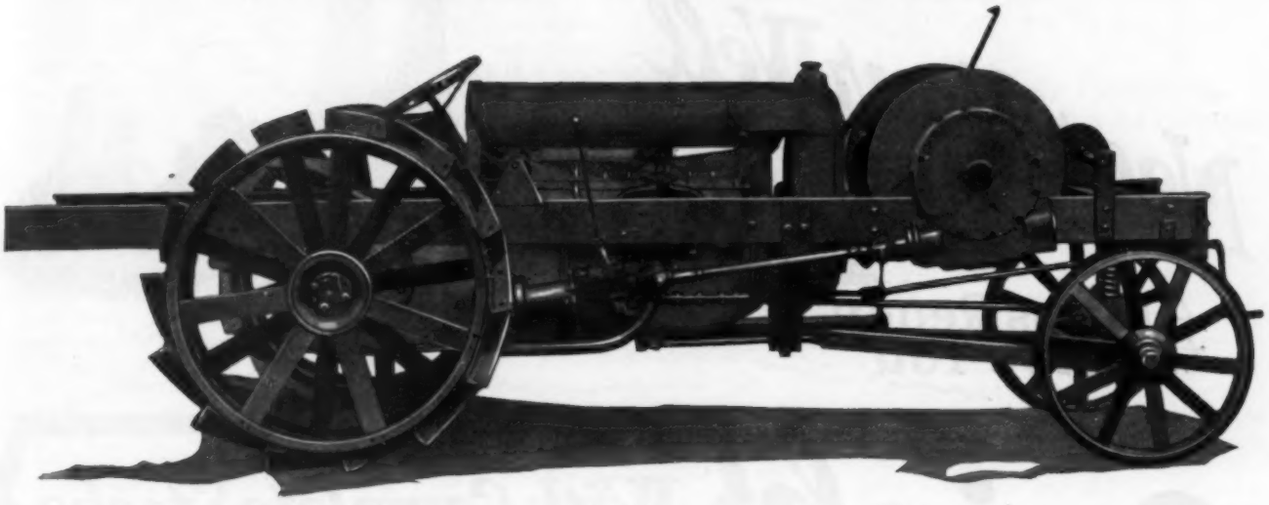
"In choosing paints for tanks many factors must be considered. Probably the three most important are cost, protective value, and color. Many companies have adopted a standard color for all of their tanks. In this way they reduce the initial cost of paint by buying in large quantities. The tank farms of such companies usually have a neat appearance, resulting from the uniform painting of all tanks. This procedure also has advertising value. Unfortunately, most of the paints used to protect steel are of the darker colors, usually red or black. These colors accelerate the rate of evaporation. Several companies have solved this difficulty by using a dark colored metal-protective paint as a primer coat, and a paint of any desired color for the final coat. Special metal protective primers to be used under light colored cover coats have been placed on the market by several paint manufacturing companies.

"The temperature of oil in storage tanks is influenced largely by heat received from outside sources by radiation. The main source is the sun.

"Before considering the effect of color on the temperature of the oil and vapor in a tank, some of the characteristics of radiant heat will be discussed briefly. Radiant heat waves are similar

(Continued on page 94.)

SHEFFIELD HOISTS
WORM DRIVEN



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Say you saw it in The Oil Weekly

Geological Survey Party Deep Into Alaskan Reserve

Washington, D. C.—A two-months old letter sent from Kotzebue, Alaska, by Gerald FitzGerald, in charge of the geologic and topographic party that left Washington last February to continue surveys in Naval Petroleum Reserve No. 4, in northern Alaska, has just been received by the Department of the Interior through the Geological Survey. This letter, dated April 10, is a mute witness to the remoteness of the region from which it came.

The party made the trip from Nenana, on the Alaska railroad, to Kotzebue, a distance of about 700 miles, by dog teams in 27 days. In spite of storms and bad weather they were on the trail every day except one, so that the average daily run was over 25 miles, and, according to Mr. FitzGerald, on one day they made a run of 47 miles. Persons unfamiliar with travel by dog sled perhaps picture such traveling as little more than riding on the sled, comfortably bundled up in furs, but the actual conditions of this trip were far different, for each of the two sleds carried several hundred pounds of equipment, and the steering is done by the man who runs between the string of dogs and the sled or the man who runs at the rear of the sled and steers by means of the handle bars. Furthermore, although the route from Nenana to Kotzebue follows the mail trail for much of the way, travel over it may be no more frequent than once or twice a week, so that, after a heavy fall of snow, the travelers are obliged to tramp ahead of the dogs on snowshoes to break out the trail anew. The snow of the old trail is hard and compacted, but when it is buried under new snow there is great difficulty in keeping on the old sled tracks, which are less than two feet wide, and as soon as the sled runs off into the soft snow on either side considerable man power must be expended to get it back onto the trail, even if it does not upset when it runs off the track. Travel by dog sled is therefore mainly jogging along on foot at a dogtrot, and although when everything is going well the traveler can "hop" an occasional ride, these lifts are usually more than offset by the necessity of pulling and pushing when going uphill or when the dogs are not working smoothly. On the whole, therefore, the members of the party may be said to have worked their passage from the government railroad to Kotzebue.

Kotzebue is a little settlement on the shore of Kotzebue Sound, a short distance north of the Arctic Circle, and its white population usually consists of a trader, a missionary, a school teacher, and at most possibly half a score of others. It is near the mouth of Noatak River, one of the large streams that flows from the region far back in the mountains of northern Alaska. This river is the route that the surveyors followed in going into the naval petroleum reserve.

Mr. FitzGerald and party planned to go up the Noatak and one of its tributaries, the Kugururok, 150 to 200 miles to find a pass across the Brooks Range, which forms the northern divides of the Noatak basin. On the north side of the range is the headwater region of the Utukok River or some other stream that flows northward into the Arctic Ocean. The party was probably well across the mountains before the spring break-up of the ice, which in this region usually happens between the 15th and 25th of May. The explorers carried with them supplies of food and equipment enough to last them throughout the next five months, while they are working in the reserve. These supplies made a load of nearly two tons in addition to a canoe, which the party will use during the open season in traversing the streams of the region.

As the party will be entirely out of reach of communication until September, probably nothing further will be heard from them until they return in the fall. In fact, it is doubtful whether they will even see any natives after they leave Noatak River until they approach the coast in September. Besides mapping geologically and topographically several thousand miles of hitherto unsurveyed or unexplored country, they should add materially to the knowledge not only of the immediate problem with which they are principally concerned—the search for petroleum—but also of the general features of a tract of country probably as large as the state of Massachusetts into which, so far as the survey records show, no white man has ever stepped.

The party was thoroughly equipped to meet all the conditions that can be anticipated, and the leader is especially conversant with the country and the conditions of work, for this is his third trip into the naval petroleum reserve, and he has also served several years as a member of the Geological Survey in other parts of Alaska and the United States.

W. R. Smith, the geologist of the party, is a graduate of Johns Hopkins University, and although this is his first year north of the Arctic Circle, he has served several years on the Survey in examining and reporting on the possible presence of petroleum in parts of the Alaska Peninsula.

W. R. Blankenship, who was with the Survey parties in the naval petroleum reserve in 1924, and F. E. Delzene, one of the champion dog drivers of Seward Peninsula, are with the party as camp assistants. Probably one or more Eskimo and their dog teams were hired at Kotzebue or at the mission on the lower Noatak to assist the party in freighting supplies to the place where the real work of surveying new country was started.

Reagan County Purchasing Company Moves to Houston

Houston, Texas.—George R. Marland, president of the Reagan County Purchasing Company, Inc., has transferred the headquarters of the company from Texon station in the Big Lake field to Houston, and is now established in the Cotton Exchange building. The Reagan County Purchasing Company holds contracts to purchase a maximum of 5000 barrels daily up to next December and 10,000 barrels from then on for the life of the leases of the Big Lake Oil Company and Texon Oil and Land Company in the Big Lake field. The Marland Oil Company of Texas originally acquired this crude contract, and the purchasing company was organized to carry it out, with the two producing concerns holding 49 per cent of the preferred and common stock. The purchasing company receives 20 cents per barrel for all crude gathered in the field and delivered to its nearby tank farm, which is connected by Humble's eight-inch line to the Gulf Coast.

Report Describes Foremen As "Key Men of Industry"

Training foremen is the subject of the latest report published by the Metropolitan Life Insurance Company's Policyholders' Service Bureau.

Few foremen appreciate what important factors they are in the lives of those whom they supervise. The report shows how foremen can make a day fruitful or barren.

The report deals with foremen as the key men or link between management and employes. Their part in reducing labor turnover—promoting and maintaining co-operation of men,—cutting costs,—and eliminating waste,—is emphasized. There is much to be gained by training foremen to do these things,—gains for the workers and gains for the management.

The report outlines subjects recognized as valuable for foremen training and gives a description of the best methods of teaching them. The foremen training practices of nine nationally known companies are described.

Copies may be secured without obligation by writing to the Policyholders' Service Bureau, Metropolitan Life Insurance Company, New York. Ask for "Training Key Men in Industry."

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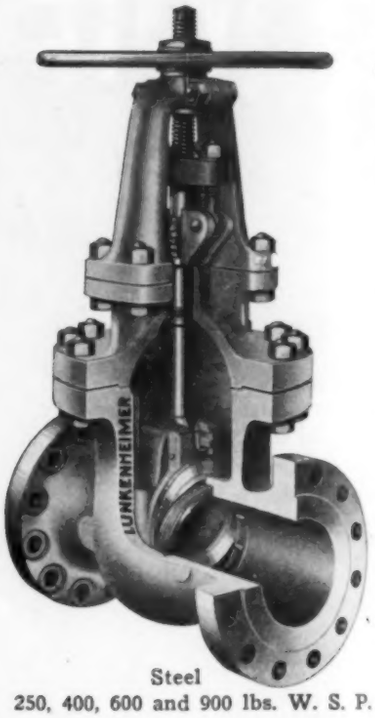

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Say you saw it in The Oil Weekly

Inglewood Field in California Still Climbs

Production during past week mounted to 93,000 barrels one day and averaged 90,000 barrels for the week

Los Angeles, Calif.—California daily average production the past week was 669,000 barrels, in the face of a shut-in production of at least 35,000 barrels. And if any one feels like giving thanks they can pin the laurels on the new Inglewood field in the Baldwin Hills on the edge of Los Angeles city limits. Inglewood had a daily average production of 412 barrels during last February, and this average jumped to 2675 in March, and then stepped up to 2894 barrels in April, and the May average was 24,845 barrels.

Wells Hold Up

Production is secured from around 2000 feet to 2800 feet, and a well can be completed in three weeks. Many of the wells in the best part of the field double their production the first week, and then hold up fine with a good gas pressure. One eight-inch pipe line is operating out of the field, and four more six-inch lines will be completed in July. At least 90 per cent of the production has a gasoline content ranging from 17 to 20 per cent. Production July 1 reached 93,000 barrels, with a daily average of 90,000 barrels for the week.

During the past week the Pacific Oil Company completed its first producer on the east edge of the field for 525 barrels of 20 gravity oil at 2450 feet. The Pacific has at least one other well drilling now that is expected to make even better production. But it is generally considered that a very large part of the Pacific tract, known as the Baldwin (owned by the heirs of Lucky Baldwin) will not be productive at the present levels. Two dry holes around 5000 feet have been drilled on the eastern part of the tract, some distance from present production. But it is doubted if the Pacific will be satisfied without deeper holes on the large acreage.

Picks Up Deep Sand

There was some excitement the past week when Oscar Howard picked up an oil show on the extreme western edge of the Inglewood field at about 3900 feet, and there are some who expect a deeper sand to be uncovered. The Standard is drilling a deep test within 100 yards of the Oscar Howard well and has reached a total depth of slightly better than 3000 feet.

At the close of the week 45 wells were drilling at Inglewood. Next week several of the Standard's wells, and also several drilling by the Shell Company, are expected to be completed, and there is a bare possibility that the daily production will be boosted to 100,000 barrels, but some do not expect this. It seems to be a foregone conclusion that 125,000 barrels a day limit will not be reached unless a deeper sand is uncovered.

Torrance seems to be staging a small comeback, as four new wells were completed the past week in addition to six workovers. But the initial production was small.

Huntington Beach a Wonder

Huntington Beach and Long Beach are holding up better than had been expected, with Long Beach hovering around 108,000 barrels, against 122,297 barrels daily average last January. Huntington Beach now has a daily average production of around 47,500 barrels, against only 41,673 barrels last January.

The Standard Oil Company has a considerable acreage at Huntington Beach yet undrilled, and there is no danger of nearby wells draining the leases. So the Standard will be drilling new wells for many months to come. Other companies have smaller tracts which can be drilled slowly during the next year at least. So Huntington Beach will stay on the job for a long time.

Record Number New Wells

More permits for new wells in California were issued during the week ending June 27 than for any week in the past two years, except for the week ending with May 24, 1924, when 49 permits were issued—the same number issued during the week ending June 27. Seventeen of the permits were for new wells in the Inglewood field, with Rosecrans second with seven permits. Twelve new wells are starting in the San Joaquin Valley fields.

Marland officials have not yet ordered a new cementing job at the Marland 7 in the Dominguez field, but instead are running the swab in an effort to start the well to flowing and to secure circulation. It is known that salt water is coming into the hole, but from where no one yet knows. This hole has a total depth of 5542 feet, and the oil sand extends from 5507 to bottom. Fully 1000 feet of oil stands in the hole.

5000 Barrel Gusher From Blossom Sand at Smackover

Shreveport, La.—The first real gusher from the Blossom sand at Smackover was brought in last week on the Houston Oil Company's Reynolds Lease, at a location near the southwest corner of section 27-15-15, Ouachita County. At one time, it was estimated that the well was making in excess of 10,000 barrels of oil per day; and later reports are to the effect that it is making at least 5000 barrels of clean pipe line oil. As recorded in our issue of last week, this well made large quantities of gas with a spray of oil when tested at 2562 feet. It was later deepened, and when tested in eight feet of sand at 2578-86 feet, total depth 2591 feet, it came in as an oil well. Its location is on the north-eastern boundary of the field, as now defined by producing wells.

Among more recent Blossom sand completions are listed the Natural Gas & Petroleum Company's Murphy F-4, in section 9-16-15, and the Sure Oil Company's Murphy 3, in section 15-16-15, both of which are flowing large quantities of salt water accompanied by heavy gas pressure. The Lion Oil & Refining Company's Lawton A-6, in the SE¼ NW¼ of section 10-16-15, also is showing salt water from a sand at 2600-12 feet.

The Gulf Refining Company's Scott No. 1, near the center of section 34-15-15, blew in several days ago with the drill stem still in the hole, making around 10 million cubic feet of gas and a spray of oil from ten feet of sand at a total depth of 2582 feet. In fact, a number of gas wells have been brought in from the new sand; and, but for the Houston Oil Company's gusher oil well, operators might be described as inclined to be pessimistic regarding its possibilities as an oil reservoir.

As this is written, deep sand production at Smackover, including the yield from both the Graves and Blossom horizons, has declined to around 159,000 barrels per day, having fallen during the last few days at the rate of around 5000 barrels per day. One hundred and eighty-five deep wells have been put on the beam; but one hundred and forty others are dead, awaiting the installation of pumping equipment.

Urania Well Checks Higher But Goes Dead Just the Same

Shreveport, La.—Cleve Love, who participated in the bringing in of the famous discovery well at Plain Dealing on July 4, 1917, celebrated the 1925 anniversary of Independence Day in a similar fashion by completing a flowing well at Urania, in La Salle Parish. The Urania well, which is located on the property of the Tremont Lumber Company in section 30-10-2e, came in about two hours after midnight and flowed by heads until about sun-up, making about 300 barrels of oil during a period of about four hours. It also made some salt water before it bridged over and went dead.

The pay sand was logged at 1516-26 feet, or between 25 and 30 feet higher, with respect to sea-level, than in the discovery wells drilled by the Urania Petroleum Company and Zeigen et al in section 18-10-2e, two miles north. Operators interested at Urania find some encouragement in the fact that the log of the Love well checks higher than those previously drilled; but they cannot overlook the fact that it behaved very much like the flash-in-the-pan discovery wells which flowed for brief intervals and then went dead, never to be revived. Preparations are being made to clean out the Love well, in an effort to restore its flow.

The Urania Petroleum Company is said to be considering the advisability of installing a pumping rig on its No. 7 Urania Lumber Company, recently completed, in section 18-10-2e. The well has several hundred feet of oil in it, with very little water.

The Morefield-Caddo Oil Company's Mebane-Stiles No. 1, located 250 feet north and 1700 feet west of the southeast corner of the M. Gupton Headright Survey, in the eastern part of Marion County, Texas, was brought in about a week ago with an initial production of around 300 barrels of 40-gravity oil per day from a total depth of 2329 feet. The final string of casing was cemented at 2145 feet. This well is located in semi-wildcat territory, about one half mile west of the Louisiana state line, which also defines the western boundary of the old Caddo Oil Field at this point. According to the driller's log, the producing formation was encountered somewhat higher than in producing wells in the adjacent portion of the Caddo Field.

The Dixie Oil Company is engaged in setting a string of 4½-inch extra-heavy casing at 3689 feet in its Dillion No. 53, in section 13-21-15, Caddo Parish, near the famous Pine Island deep sand gasser. Oxide of iron was used to drill through the upper part of the high pressure gas sand; and this test should afford a clue as to whether or not oil production underlies the rich gasoline-laden gas.

A windstorm which swept over the Caddo Field about a week ago caused the loss of fifteen or twenty wooden derricks in the vicinity of Trees City, including fourteen on the property of the Standard Oil Company and two on leases owned by the Gulf Refining Company. Reports from Arkansas state that a dozen or more derricks were demolished by the same storm at Louann, in the western part of the Smackover Field.

Jim Evans and others, of Shreveport, are preparing to drill the plug tomorrow in their Miles wildcat, in section 20-18-7, near Gibsland, in Bienville Parish. Eight-inch casing was set at around 2000 feet, above a showing of gas logged at 2030 feet.

Collins & Woodley are drilling at around 2150 feet in their McDonald wildcat, in section 26-21-5, of the Sugar Creek community, in Claiborne Parish.

The Palmer Corporation has set 6⅝-inch casing at 3305 feet in its Davis deep test, in section 23-21-10, in the heart of the Cotton Valley Field. The Woodbine sand is to be tested in this well.

Empire Pipe Line Runs

The pipe line runs of the Empire Pipeline and Petroleum Company for the month of May, giving crude oil receipts, deliveries and stocks and daily average of receipts and deliveries, are as follows:

Pipeline receipts, 1,216,975.97 barrels; daily average, 39,257.29 barrels.

Pipeline deliveries, 1,001,458.18 barrels; daily average, 32,305.10 barrels.

Stocks, June 1, 1925, 3,504,290.67 barrels.

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The only stock outstanding besides this issue is $500,000 of common stock, the assets of the company being close to $4,000,000 as against the present total authorized capitalization of $2,000,000.

The company is a producer of crude petroleum and manufacturer of natural gasoline. Its present production of crude petroleum in Oklahoma and Kansas is approximately 2,000 barrels a day net of high gravity oil.

Net earnings at present are running approximately $100,000 a month, or more than eight times the dividend requirements on the $1,500,000 issue of preferred stock.

The high annual dividend yield of 10% is made possible by the fact that the shares are being sold directly by the company, without the payment of a commission of 15% to 25% to an underwriting syndicate. The purchaser receives the benefit of the saving in commissions.

Officers of the company are: President J. Arthur Hull, vice president of the Bessemer Gas Engine Company and bank director; Vice president, Ralph C. Riley; Secretary O. J. McCann, and Treasurer, P. F. Cole.

Careful inquiry into the merit of this issue is solicited.

For descriptive circular address the

J. A. HULL COMPANY

1005-13 Kennedy Bldg. Tulsa, Oklahoma

Reconnaissance Study of the Salado Arch In Northeastern Mexico

Continued from Page 32

has previously been considered to be Eocene.

Section of Eocene in Ceja Grande at Rancho El Sauz, Tamaulipas

The Tertiary rocks of the Ceja Grande dip northeast at a steep angle and expose a great thickness of beds. A good section may be measured in the hills of the Ceja Grande near Rancho El Sauz, Tamaulipas (line A-A, Fig. 1). In the short distance of approximately three and one-half miles are exposed 5422 feet of sediments. No attempt has been made at correlation of the series with the various subdivisions of the Eocene, but it will be noted that lithologically the beds are readily divisible into three main parts, in order from top to bottom, as follows: (3) 1453 feet of interbedded shales and greenish sands, in places carrying coal; (2) 1029 feet of red sandstone; (1) 2940 feet of intercalated yellow olive, and green shales and brown sandstones with some thin beds of impure, fossiliferous limestone. As will be noted under "Structure," there is a possibility that these thicknesses may be in part due to duplication of beds by faulting. The El Sauz section* follows:

TABLE I

	Thickness* Feet
Shale plain	?
Soft brown sandstone, strike N. 60° W., dip 10° NE.	
Interbedded green and brown sandstones and shale; shale predominating in upper part and sandstone in lower part.	
Sandstone of considerable thickness; some sandy shale. Strike N. 60° W., dip 10° NE.	
Massive sandstone with associated thinner beds. Forms fourth ridge in Ceja Grande at El Sauz. Cannel coal mined at this horizon at Rancho La Palma, a short distance SE. This cannel coal may perhaps be correlated with that in the mines of Webb County, Texas, N. of Laredo, which is held to be Cook Mountain or Mount Selman in age	740
Green, yellow, and bluish sands, considerable thickness.	
Massive, soft blue sandstone, 4 ft. thick.	
A thin, hard, gray limestone, practically a breccia of *Venericardia* shells. Just above Arroyo Sauz	293
Massive yellow and green sandstone in bed of Arroyo Sauz. Medium-grained, micaceous, cross-bedded in places. Strike N. 45° W., dip 20° NE.	118
Greenish, thin-bedded sandstone. Below this the green sands disappear	302
Red sandstone. Medium to coarse-grained, thin-bedded, ferruginous.	
Red sandstone. Medium-grained, massive, about 10 ft. thick. Weathers into regular shapes, strongly ripply-marked in places. Forms hogback ridge—the third ridge in Ceja Grande at El Sauz. Strike N. 60° W., dip 20° NE.	587
Massive, red sandstone, also thin strata. Medium to coarse-grained. In narrow valley.	
Red sandstone. Medium-grained, massive, ripple-marked. Weathers into fantastic forms. Forms second ridge in Ceja Grande at El Sauz. Below this the red sands disappear	442
Thin-bedded sandstone, brown and white.	
Brown, fine-grained sandstone, about 20 ft. thick. Strike N. 45° W., dip 30° NE.	206
Yellow shale and interbedded soft brown sandstone.	
Thin layer of red, ferruginous clay-ball conglomerate, associated with calcareous yellow concretions. Contains small oyster shells. Forty ft. above underlying heavy sandstone.	
Massive, soft, fine-grained, micaceous sandstone, 10 ft. thick. Strike N. 60° W., dip 20° NE.	301
Olive shale and interbedded sands.	
Soft, micaceous sandstone, rather massive, 15 ft. thick, micaceous	542
Interbedded sandstone and green shale.	
Thick-bedded sandstone, about 20-30 ft. thick, brown. Strike N. 70° W., dip 20° NE. Immediately below this sand is a thin, brown, impure limestone, highly fossiliferous, but so indurated that fossils can not be broken out. Weathered surface shows cross-sections of oysters and gastropods.	342
Yellow-green shale and thin sandstones	292
Soft, fine-grained yellow sandstone, with minor amount of shale. Strike N. 75° W., dip 15° NE.	74
Yellow and olive shale.	
Thin, dark-brown limestone, very fossiliferous. Lies on yellow, calcareous concretionary layer. Contains many *Venericardia planicosta*, *Turritellas*, corals, oysters	
Green shale.	
Sandstones, 3 and 4 ft. thick, and green shale. Strike N. 80° W., dip 20° NE.	
Yellow green shale.	
Thin, well-indurated sandstone, with many broken shell fragments	638
Yellow and green sandy shale with a few beds of brown sand	176
Interbedded sandy shale and soft to hard, brown sandstones. Limonite concretions; a few large calcareous concretions. Large amount of sandstone in section. Strike N. 80° W., dip 21° NE	242
Thin-bedded, slabby sandstone, upper layer ferruginous. Forms first or front ridge of Ceja Grande in El Sauz section. Strike N. 45° W., dip 16° NE.	
Intercalated thin, brown sandstones and blue and yellow sandy shale	52
Hard, brown sandstone, in places coated with iron oxide.	
Gypsiferous, yellow shale. Cast resembling *Cucullea macrodonta* found. Interbedded with thin layers soft, brown sandstone. Strike N. 50° W., dip 16° NE.	
Large, yellow concretions (starting-point of section in plain at foot of Ceja Grande escarpment)	75
Total thickness	5422

*Measured with plane table.

*The thicknesses in margin or section refer, not to specific beds, but to measurement units, comprising groups of beds. Any data as to specific thickness of a certain single stratum will be found in the lithologic description of the section.

Structure

There is evidence of the existence of a large anticline in this region, which the author has called the "Salado Arch." The Tertiary sediments of the Ceja Grande hills or escarpment dip northeast from 5° to 30° from the northern limit of the area examined at Laguna de la Leche to near San Ignacio, Tamaulipas. The strike of the beds varies from N. 20° W., to N. 80° W. Approximately 75 miles of strong northeast dip were observed along the Ceja Grande.

A short distance north and northwest of Las Tortillas the general dip changes to southeast, as evidenced by several hogback hills, which have pronounced dips of about 3° in a direction of S. 40° E. Going northwest from these hills, the northeast-facing escarpment of the Ceja Chica south of Hacineda Gutierrez shows definite dips of from 1° to 3° in a direction from S. 30° W. to S. 45° W. Thus, the dip swings from northeast in the Ceja Grande, near the south end of the area, to southeast in the hills above Las Tortillas to southwest in the Ceja Chica, a condition indicating a plunging anticline.

The topographic features of the opposing scarps of the Ceja Grande, facing southwest, and the Ceja Chica, facing northeast, have been noted. As one drives through the valley between the two ranges of hills this contrast is striking The topography is in accordance with the anticlinal evidence afforded by the dips, and the logical conclusion is that an anticlinal axis passes between the Ceja Grande and the Ceja Chica. The precise location of this axis can be determined closely only by very careful examination.

West of the Ceja Chica between these hills and the Rio Salado from Rancho La Aguja on the river to Las Tortillas there are indications of a syncline. The prevailing dips along the river below Rancho La Aguja are to the northeast. North of Rancho Elizondeno is a southwest-facing scarp with northeast dip, in contrast to the southwest dips in the scarp of the Ceja Chica south of Hacienda Gutierrez.

The Salado Arch is a southeastward plunging anticline, trending northwest and southeast roughly parallel to the anticlinal mountain ranges to the west. It is most clearly defined south of the line of the Mexican National Railway from Nuevo Laredo to Monterey, but is believed also to extend north of the railroad. It differs from many anticlines found on the skirts of mountain ranges in that the limb with the steeper dip is on the basinward instead of the mountainward side of the fold. It is not within the scope of this paper to discuss the orogeny of the fold with relation to the mountain-building of Mexico, nor to enter upon a discussion as to the time at which the anticline was formed, save that the movements, having affected Eocene beds, must have endured into post-Eocene times, no matter at what period the movement was initiated.

No definite Eocene has been found on the west side of the fold nor do the Cretaceous beds show the areal arrangement that might be expected. Starting at the Ceja Grande, a traverse to the west leaves behind the Eocene sediments and passes through the regular sequence of Cretaceous strata, going continually, as regards major subdivisions of the Cretaceous, from younger to older beds. The question immediately arises: Why do Tertiary beds not occur on the west limb of the fold? Why is there an uninterrupted sequence of Cretaceous rocks across the fold? In answer it may be suggested that the anticline is asymmetrical—the dips on the west limb are much gentler than those on the east limb (a contrast of 1° to 3° dips with dips of an average magnitude of 20°). Possibly it has resulted from this that the folding has not been sharp enough to permit erosion to disarrange the stratigraphic se-

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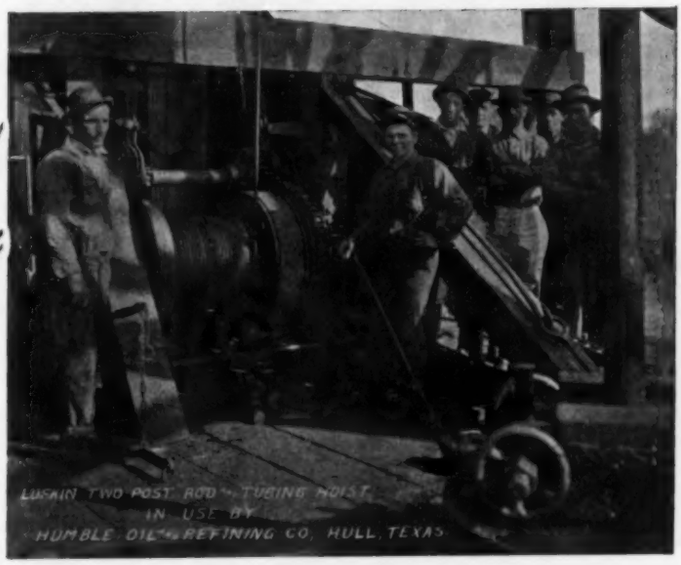

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quence of the Cretaceous, i.e., to expose Pappagallos within the Escondido outcrop. With regard to the absence of Tertiary on the west limb, it is possible that the folding began in Cretaceous time and that in Eocene time a low barrier was formed, which prevented later deposition of Eocene on the west side of the fold.

The thickness of the Eocene beds in the Ceja Grande suggests that there may be some duplication of beds through strike faulting, and close examination of the Ceja Grande may reveal considerable faulting. Near Huizachito in the railway cuts there is some minor crumpling, chiefly due to thrust.

On a fold of this size—it extends about 30 miles in a straight line from Las Tortillas to the railroad and probably still farther north of the railway—there are undoubtedly local domes and faulting, which will be found by detailed investigation. These local features should facilitate petroleum accumulation. Additional oil reservoirs are constantly being discovered in comparatively small structures associated with larger regional structures or structural trends, as the pools on the Bend Arch in North Central Texas, the fields at Mexia, Powell, and Luling in Central and East Central Texas along the Mexia fault zone, and the fields of Webb and Zapata Counties, Southwest Texas, along the Reynosa fault zone. The Upper Cretaceous is exposed on the crest of the Salado Arch, and when smaller structural conditions superimposed upon it are located, favorable drilling sites may be selected. Prospects of commercial production are greater on account of the proximity to the surface of the San Juan (San Felipe) and Tamasopa limestones, which have yielded the oil at Tampico. On this account the Salado Arch offers more favorable drilling conditions than other structures in Northeastern Mexico along the Rio Grande, where a great thickness of Eocene must be penetrated before the Upper Cretaceous is reached.

Only the drill can reveal whether the Cretaceous limestones will be productive, but the region of the Salado Arch should be given serious consideration in the future exploitation of the possible oil resources of Mexico.

Conditions Indicate Activity In East Over Balance of Year

Pittsburgh, Pa.—Conditions are bettering in the oil industry in all fields east of the Mississippi river and from now until the close of the year, work will go with a rush in some sections while others will remain more normal. The scarcity of high-grade crude and the recent drops in production the past few weeks has made things look more pleasing and all that is now lacking is an advance in the market to bring forth an unusual activity. Much wildcat work is being done and with crude at $2.50 per barrel work would liven up to a great extent in the Indiana and Illinois fields where work is more quiet than in any of the other fields of the Eastern group.

Probably the most interesting well of any of the recent completions for weeks in the Eastern fields, is that of the Auburn Oil Company, southeast of Fort Wayne, in Maumee township, Allen County, Indiana. This well yet uncompleted has all the earmarks of a 50-barrel flush well and better than 1,000,000 cubic feet of gas, and miles away from production, the closest being in the Payne field in Paulding County, Ohio, five or six miles to the southeast. The well is on the Helmke lease and should encourage much additional drilling on both sides of the state line of Indiana-Ohio. In Southwestern Indiana, two dry holes were found the past week. One is a test drilled by C. P. Erni and Company, on the Coskey lease, in Barton township, Gibson County, and the other drilled by Billman and Company, on the Lambert lease in Hamilton township, Sullivan County.

One of the most interesting gas areas anywhere in the East is located at Pratt on the Kanawha river, in the Cabin Creek district of West Virginia. This is in a way a town lot drilling boom and the past week 14 wells were reported completed, in the pool, the net volume of gas from that number showing 61,500,000 cubic feet, the smallest well doing 1,000,000 cubic feet and the largest 12,000,000 cubic feet. The fact that the territory is being so thickly drilled, spells a short life for the gas volume.

Some very fine oil producers are listed in the fields during the week. In Clay County, W. Va., the Virginia Gasoline and Oil Company drilled a 125-barrel well on the Caston lease, far above the average wells of today, while the Pure Oil Company's No. 222 on the Williams Coal Company's tract, in Boone County, same state, had a production of 25 barrels.

Kentucky's best completion was a 90 barrel well found by the McClintock Oil Company on the Maude Blythe lease, on Kettle Creek, in Cumberland-Monroe Counties.

The best of the recent completions are being made in the deep Clinton sand, in the Central Ohio field. The Edward H. Everette Company's second test on the U. G. Porter lease, in Hanover township, Licking County, produced 290 barrels. In Union township, Knox County, the Pure Oil Company, landed a 100-barrel well on the Heaton lease, while in Coal township, Perry County, the Ohio Fuel Corporation's No. 4 Trimmer lease, showed 65 barrels. Wells of the calibre of these are hard to find in the Eastern fields in these late days. Southeastern Ohio's best well was found by the Pure Oil Company, on the Hughes lease, in York township, Morgan County. In the Northwestern Ohio field the Crystal Oil Company's wildcat on the Wohrmyer lease, in Jackson township, Auglaize County, produced around 50 barrels and makes some miles of extension. Down close to Cygnet, the Ohio Oil Company struck a 40 barrel well, indicating that there is still an abundance of oil to be found even where wells have been producing for close onto 40 years.

The Stray sand of Martinsville, Illinois, field, is doing its share toward getting producers of value as the Trenton Rock Oil and Gas Company's No. 7 McClelland lease, showed 75 barrels, and the same company's No. 5 William Carper lease, 60 barrels.

R. C. Pew, vice president of the Sun Oil Company and brother of J. E. Pew, president of the American Petroleum Institute, died at his home in Toledo, Ohio, last week. Mr. Pew was one of the early pioneers in the refining of oil and was widely known throughout American oil circles.

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CRUDE OIL PRICE QUOTATIONS

Crude Price Changes

Findlay, Ohio, July 6.—The Ohio Oil Company today announced an increase of 10 cents per barrel in price of Wooster crude oil. The new price is $2.25.

Oil City, Pa., July 8.—Joseph Seep Purchasing Agency today announced an increase of 20 cents per barrel in price of Corning oil. The new price is $2.25.

Current Postings

EASTERN STATES

	July 8 1925	July 12 1924
New York Transit	$3.90	$3.25
Bradford (Pa.)	3.90	3.25
Gains	3.45	...
Other Pa. Grades	3.75	3.00
Cabel	2.35	1.60
Ragland	1.30	1.00
Corning	2.25	1.90
Somerset, medium	2.45	1.70
Somerset, light	2.60	1.85

CENTRAL STATES

Illinois	$2.02	$1.97
Indiana	2.03	1.98
North Lima	2.23	2.18
South Lima	2.23	2.18
Plymouth	1.55	1.35
Princeton	2.02	1.87
Waterloo	1.10	1.45
Wooster	2.25	2.00

WESTERN KENTUCKY

Posted by Indian Refining Company for crude from Allen, Warren, Franklin, Davies, Barren, Cumberland and Monroe Counties

36 and above	2.05	1.75
33 to 35.9	1.95	1.65
32.9 and below	1.85	1.55

CALIFORNIA

(Crude oil prices at well)
Los Angeles and Orange Counties

14 to 19.9 gravity	$1.25	$1.00
20 to 20.9 gravity	1.27	1.01
21 to 21.9 gravity	1.30	1.02
22 to 22.9 gravity	1.33	1.03
23 to 23.9 gravity	1.36	1.05
24 to 24.9 gravity	1.40	1.07
25 to 25.9 gravity	1.44	1.10
26 to 26.9 gravity	1.48	1.13
27 to 27.9 gravity	1.52	1.16
28 to 28.9 gravity	1.56	1.19
29 to 29.9 gravity	1.60	1.22
30 to 30.9 gravity	1.64	1.25
31 to 31.9 gravity	1.68	1.28
32 to 32.9 gravity	1.72	1.31
33 to 33.9 gravity	1.76	1.34
34 to 34.9 gravity	1.80	1.37
35 gravity and above	1.85	1.40
Fuel Oil	1.65	1.40

Rosecrans Field

36 to 36.9 gravity	$1.92
37 to 37.9 gravity	2.00
38 to 38.9 gravity	2.08
39 to 39.9 gravity	2.16
40 to 40.9 gravity	2.24
41 to 41.9 gravity	2.32
42 and above	2.40

MID-CONTINENT

(Prairie Prices)

Below 30 gravity	1.35	1.25
30 to 32.9 gravity	1.55	1.45
33 to 35.9 gravity	1.80	1.75
36 to 38.9 gravity	2.00	2.00
39 to 41.9 gravity	2.25	2.25
42 and above	2.35	2.25

(Sinclair Prices)

Below 30 gravity	1.35	...
30 to 32.9 gravity	1.55	...
33 to 35.9 gravity	1.80	...
36 to 38.9 gravity	1.95	...
39 to 41.5 gravity	2.25	...
41.6 and above	2.35	...

	July 8 1925	July 12 1924

(Texas Company Prices)

Below 30 gravity	1.35	...
30 to 32.9 gravity	1.55	...
33 to 35.9 gravity	1.80	...
36 to 38.9 gravity	2.00	...
39 to 41.5 gravity	2.25	...
42 and above	2.35	...

(Magnolia Petroleum Co.)

Under 28 gravity	1.00	.90
28 to 30.9 gravity	1.35	1.00
31 to 32.9 gravity	1.55	1.10
33 to 35.9 gravity	1.80	1.35
36 to 38.9 gravity	2.00	1.50
39 to 41.9 gravity	2.25	1.50
42 and above	2.35	1.50
Corsicana, light	2.00	1.50
Corsicana, heavy	1.00	.90
Mexia	2.00	1.50
Thrall	1.00	...
Wortham	2.00	...

NORTH CENTRAL TEXAS

(Humble Oil & Refining Co.)

Corsicana, light (Powell)	2.00	1.75
Mexia	2.00	1.75
Currie	2.00	2.00
Richland	2.00	...
Wortham	2.00	...

(The Texas Company)

42 and above	2.25	...

(All other grades same as Humble)

RANGER

(Humble Oil & Ref. Co.)

30 and below	$1.35	...
30 to 32.9	1.55	...
33 to 35.9	1.80	...
36 to 38.9	2.00	...
39 to 41.9	2.25	...
42 and above	2.35	...

WICHITA AND ARCHER COUNTIES

(Texas)
(Humble Oil & Ref. Co.)

30 and below	1.35	...
30 to 32.9	1.55	...
33 to 35.9	1.80	...
36 to 38.9	2.00	...
39 to 41.9	2.25	...
42 and above	2.35	...

Moran Crude

30 and below	1.35	...
30 to 32.9	1.55	...
33 to 35.9	1.80	...
36 and above	2.00	...
Lytton Springs (Lockhart)	2.00	...

SOUTH TEXAS

Mirando (Texpata)	1.00	.80
Mirando (Magnolia)	1.00	.75

SOMERSET

(Grayburg Pipe Line Company)

30 and below	1.35	1.15
30 to 32.9	1.55	1.15
33 to 35.9	1.80	1.40
36 to 38.9	2.00	1.60
39 to 41.9	2.25	1.75
42 and above	2.35	1.75

GULF COAST

Grade "A"	1.75	1.75
Grade "B" at Blue Ridge, Hull and Pierce Junction	1.50	1.45

Big Lake (Reagan County)

36 to 38.9	$2.00	...
39 and above	2.25	...

LULING

Based on Contract	1.15	1.00
Lockhart	2.00	...

	July 8 1925	July 12 1924

LOUISIANA-ARKANSAS

Caddo

38 gravity and above	2.05	1.60
35 to 37.9 gravity	1.95	1.50
32 to 34.9 gravity	1.85	1.40
Below 32 gravity	1.70	1.25

Homer

35 gravity and above	1.80	1.60
33 to 34.9 gravity	1.70	1.50
31 to 32.9 gravity	1.60	1.40
Below 31 gravity	1.45	1.25

COTTON VALLEY

All Grades	1.00	.90

Haynesville

33 gravity and above	1.70	1.50
Below 33 gravity	1.60	1.40

Bull Bayou

38 gravity and above	1.85	1.55
35 gravity to 37.9	1.70	1.40
32 to 34.9 gravity	1.55	1.25
De Soto crude	1.90	1.60
Crichton	1.70	1.40
Bellevue	1.75	1.50
Jennings	1.75	1.75
Vinton	1.75	1.75
Edgerly crude	1.75	1.35

Smackover
Louisiana, Atlantic, Shreveport-Eldorado

28 and above	1.35	1.05
27 to 27.9	1.30	1.05
26 to 26.9	1.25	1.05
25 to 25.9	1.20	.90
24 to 24.9	1.10	.80
Below 24	.90	.70

The Texas Company

26 gravity and above	1.30	1.05
24 to 25.9	1.00	.90
Below 24	.80	.70

Standard—Gulf

27 and above	1.30	...
26 to 26.9	1.25	...
25 to 25.9	1.20	...
24 to 24.9	1.10	...
Below 24	.80	...

El Dorado

33 gravity and above	1.70	1.60
Below 33 gravity	1.60	1.50
East Field (Calion)	.80	.75

Stephens District

26 gravity and above	1.60	
Below 26 gravity	1.40	...

WYOMING-MONTANA

Wyoming

Byron	2.25	...
Ferris	1.30	...
Elk Basin	2.15	1.95
Grass Creek	2.15	1.95
Rock Creek	2.00	1.70
Lost Soldier	1.35	...
Lance Creek	2.15	1.90
Mule Creek	1.25	...
Notches	.65	...
Big Muddy	2.00	1.50
Salt Creek	2.00	1.60
Osage	2.15	1.90
Hamilton Dome	1.80	1.55
Pilot Butte	1.75	1.25
Torchlight-Greybull	2.15	1.90
Lander	.85	.70

Montana

Sunburst	1.40	1.05
Cat Creek	2.15	1.95

NEW MEXICO

Hogback	2.20	...

CANADIAN CRUDE

Oil Springs	2.70	2.73
Petrolia	2.63	2.68

*Bounty on Canadian crude is ¾ cents per gallon, or 26¼ cents per barrel.

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Big Drop in Number New Wells in Oklahoma

Believed that slowing up new activity will have beneficial effect upon strength of market

Tulsa, Okla.—Oklahoma operators attribute the loss in the number of new locations for the past week to the word of warning sounded two weeks ago by officials of the Prairie Oil and Gas Company that the "brakes" should be applied to the drilling of new wells. For the week just passed the reports show that there were only 70 new wells located while the week previous had a total of 115. This decrease of 45 in the number of future potential producers should have a strengthening effect upon the present market situation and should give the officials of the larger purchasing company an added confidence in their clientele of crude oil producers and sellers.

As in previous weeks, the new work has an even distribution in all districts of the state. Osage County led all others with a total of 16 while Kay County with the Braman townsite leading, reported 11 new wells started. Of the wells just spudded in, the Wilcox tests around the Deep Rock Oil & Refining Company's recent producer in Payne County, are perhaps the most interesting to watch. Six new wells have been started in this district west of the old Cushing field.

Twin State Completes No. 2 Siler

The most interesting completion of the week end just passed is that of the Twin State Oil Company in the Thomas pool. More than a week ago No. 1 Siler, an offset to the discovery well of the deep sand in the Thomas pool, drilled by the depth which was the top of the sand in No. 2 Thomas of the Marland Oil Company. On last Sunday night the well found the top of the sand in No. 2 Siler 300 feet below the top of the Wilcox sand in the discovery well. The top of the sand was found at 4288 feet about 5 o'clock Sunday morning when oil and gas blew the tools up into the hole and oil flowed over the derrick. A control head was immediately installed and it was estimated that the well was making 25 barrels per hour. No. 2 Siler is producing 333 feet lower than the Marland discovery and extends the potential area of the Thomas pool about a quarter of a mile south. The Marland well is now producing about 3300 barrels per day.

Second Braman Townsite Well Disappointing

While operators in the Braman townsite were celebrating the large increase in the Herbert Oil Company's discovery well, No. 2 Community well was drilling into water at a depth of 2417 feet. The No. 2 well, also the property of the Herbert Oil Company has had a bad effect upon the situation there and operators are shutting down their townsite wells until the situation can be adjusted.

The Herbert Oil Company's No. 1 well, near the northeast corner of the Braman townsite was agitated and drilled deeper during the week and the production for its best day was 5,200 barrels. No. 2 Community, in the southwest corner of the southeast of the southwest of section 5-28-1w, Braman townsite made approximately 20 barrels per hour after topping the sand at 2335 feet but as the hole was deepened the water supplanted the oil production and it is now being plugged back to the sand at 2335 feet.

Second Well in Fisher Pool

The second well for the Fisher pool in section 15-11-8 is on top of the sand and is now preparing to drill in after the big pipe is pulled. The Mid-Continent Petroleum Corporation (Cosden) found the sand at 3531 feet in their south offset to the Guy Fisher-Holm and Jarvis well, which came in more than a month ago for a flow of 125 barrels of fluid per hour of which 85 per cent was water. Owing to the fact that there was 174 feet of cavings in the Guy Fisher well it has never been completed although efforts to clean it out and underream have been in progress ever since the well came in. Information from the new well is to the effect that there is considerable gas in it and owners are hopeful of completing a good well. The new well is three miles north of the Cromwell pool but it is thought that it will be found to be a good pool apart from the Cromwell area on account of the fact that the sand is some distance below the depth of the Cromwell sand.

West of Cushing

The Deep Rock Oil & Refining Company, producing subsidiary of the Shaffer Oil & Refining Company, No. 1 Goodno, in the southeast corner of the southwest of the northeast of section 23-18-3, west of the Cushing pool in Payne County, has drilled one foot deeper to a total depth of 4281 feet and it is now producing 1228 barrels per day. This is the well which opened up a new deep sand pool and one which operators are expecting another Cushing in. Of the six new rigs which are being erected adjacent to this well, the Deep Rock Company owns four, the Pure Oil Company one and the Mulberry Oil Company one.

The Amerada Petroleum Corporation purchased the lease on the southeast of the southeast of section 14-18-3, a little over a quarter of a mile away from the Deep Rock well for a consideration of $2,000 per acre, payable $45,000 in cash and $35,000 in oil. Operators on the ground are of the opinion that the Deep Rock well is now in the top Wilcox sand and that it is possible to drill through this small break into the main body of the Wilcox sand which is almost always present in these deep Wilcox wells. It has been previously found that there are two bodies of the Wilcox sand divided by a slight "break".

New Bartlesville Pool

A new Bartlesville sand pool may be opened by the Mulberry Oil Company in their No. 1 Flint in the northeast of the northwest of the northwest of section 5-17-4 in Payne County. The well found the sand at 3702 feet and came in for ten million cubic feet of gas and spraying 100 barrels of oil per day from six inches in the sand. The well is now shut down while tankage is being erected and a flow line constructed. Three 500 barrel tanks are being built. The Home Gas Company of Cushing, Flynn and Morgan of Tulsa, The Skelly Oil Company and the Shaffer Oil and Refining Company have already spudded wells in close proximity to this new potential producer.

The third important event in Payne County oil development for the past week was the extension completion of the Josey Oil Company of Tulsa on the Ellis farm in the northwest corner of the northwest of section 1-18-5. The Ellis well extended the Josey pool a half mile to the south when the sand was barely scratched at 4470 feet and started flowing 41 gravity oil. No accurate gauge could be made on the well as it was shut in immediately while lines and tankage were being installed.

Skelly Well in Lincoln County

The Skelly Oil Company's No. 1 Ford, northeast corner of section 7-15-6 which opened up a new deep pool for Lincoln County some three weeks ago is producing 1280 barrels per day at the present time with each day showing a slight decrease under the previous 24-hour gauge.

The Tex-Olean Oil Company's No. 2 Wind, northwest of the southwest of the southeast of section 36-11-9, in Okfuskee County is spraying gasoline through 15,000,000 cubic feet of gas produced from a penetration of eight feet in a sand topped at 3602 feet.

Los Angeles, Calif., July 4.—The Union Oil Company's Howard Park 18 in the Rosecrans field was completed July 3 for 3200 barrels of oil at 4362 feet. This is a second line well on the discovery lease in the field.

S. B. Sargent, Jr., son of the founder of the Sargent Engineering Company of Los Angeles, was married June 20 to Miss Margarite Thornton, and left July 1 for an overland trip to El Paso, Fort Worth, Corsicana, and later to Tulsa where the couple will make their home temporarily. Mr. Sargent will represent his father's company in the Mid-Continent.

AVERAGE DAILY PRODUCTION FOR U.S.

Mountain States

Daily average pipe line runs from all fields in the Rocky Mountains for the past and previous weeks follow:

	Past Week	Prev. Week
WYOMING		
Salt Creek	54,910	55,810
Lost Soldier	4,930	6,335
Rock Creek	2,870	2,975
Grass Creek	2,250	2,400
Big Muddy	1,980	3,400
Teapot	1,815	1,800
Poison Spider	1,550	1,300
Mule Creek	920	880
Lance Creek	690	650
Hamilton Dome	675	660
Elk Basin	915	860
Rock Creek	690	650
Notches	430	325
Osage	375	390
Lander	345	360
Greybull	160	155
Ferris	110	120
Pilot Butte	75	70
Wyoming Totals	77,270	80,865
COLORADO		
Craig	690	685
Fort Collins	775	275
Florence	260	250
Tow Creek	125	125
Rangely	100	110
Boulder	30	25
Colorado Totals	1,980	1,470
MONTANA		
Kevin-Sunburst	9,110	8 700
Cat Creek	3,575	3,500
Montana Totals	12,685	12,200
NEW MEXICO		
Artesia	1,425	1,475
Rattlesnake	275	565
Hogback	530	520
New Mexico Totals	2,230	2,560
Miscellaneous	200	200
Grand Totals	94,365	97,295

Louisiana

Haynesville	13,100	13,315
Cotton Valley	11,450	11,325
Caddo Light	9,300	9,150
Vinton	8,950	7,115
Homer	6,750	7,100
Bull Bayou	4,410	4,110
Bellevue	3,365	3,375
Caddo Heavy	2,275	2,210
Evangeline	840	840
Elm Grove	600	605
Edgerly	510	550
Lockport (Lake Charles)	500	235
Anse La Butte	25	10
Totals	62,075	59,940

California

Los Angeles, Calif., July 4—The daily average production of the California fields the past week, divided as to light and heavy crudes, with number of producing wells in several fields was about as follows:

	Past Week	No. Prod. Wells	Prev. Week
Long Beach	108,500	528	108 000
Inglewood	90,000	85	82,000
Santa Fe Springs	53,000	344	53,000
Huntington Beach	47,500	309	47,000
Torrance	38,000	565	38,000
Dominguez	31,000	55	32,000
Rosecrans	21,000	55	23 000
Other fields	280,000		280,000
Totals	669,000		663,000

Oklahoma

	Past Week	Prev. Week
Tonkawa	58 090	57,835
Burbank	56,295	57,560
Bristow	44,865	45,000
Cromwell	37,770	37,940
Osage (outside Burbank)	35,600	35,760
Okmulgee	25,000	25,050
Cushing	20,870	20 900
Glenn-Grease-Papoose	19,195	18,700
Wewoka	15,570	20.890
Hewitt	14,765	14,790
Garber	11,695	11,500
Otoe	6 735	7,730
Braman	5,490	4,500
Stroud	4,685	4,700
Other fields	84 945	83,920
Totals	441,570	446,125
Light oil total	431,730	.....
Heavy oil total	9,840	.....

Kansas

Greenwood	28,140	28,290
Rainbow Bend	18,760	18 980
Eldorado	13,900	13,980
Elbing and Peabody	5,615	5,620
Augusta and Douglas	3,120	3 130
Fox-Bush	2,930	2,930
Blankenship	2,335	2,340
Florence and Covert	1,960	1,970
Other Fields	22,400	21,790
Totals	99,160	99,030
Light oil total	97,205	.....
Heavy oil total	1,955	.....

Arkansas

Smackover Heavy	220,000	238,250
Smackover Light	29,000	28,600
El Dorado	8 400	8,945
Stephens	1,900	1,835
Irma	1,455	1,545
Totals	260 755	279,175

Texas

NORTH-CENTRAL

	Past Week	Prev. Week
Corsicana-Powell	47,585	49,180
Archer County	36 035	36,115
Wortham	34,375	35,750
Big Lake-Reagan County	29 375	29,055
Mexia	19,840	19,370
Stephens County	16,650	16,805
Electra	16,993	16,800
Burkburnett	14,245	14,195
Eastland County	10,495	10 475
Young County	9,525	9,775
So. Vernon-Wilbarger County	9,025	8,970
Richland	4,400	4,500
K-M-A and Iowa Park	4,300	4,225
Moran-Shackelford County	4,090	4,080
Callahan County	3,745	3,790
Panhandle District	3 855	3,605
Brown County	2,560	2,300
Mitchell County	2,310	2,285
Currie	1,350	1,350
Palo Pinto County	700	695
Petrolia-Clay County	440	445
Montague County	195	120
Throckmorton County	65	55
Coleman County	70	75
Baylor County	55	60
Scurry County	70	70
Thrall-Williamson County	55	50
Jack County	35	30
Totals	272,438	279,665

GULF COAST

Hull	19,200	20,025
South Liberty	17,500	17,925
Orange	12,750	12 725
West Columbia	11.410	12,130
Goose Creek	10,900	10,915
Humble	4,400	4,830
Sour Lake	4,200	4,200
Saratoga	1,700	1,705
Batson	1,400	1,350
Damon Mound	1 150	1,265
Spindle Top	1,100	1,070
Big Creek	1,040	570
Blue Ridge	925	1,055
High Island	600	550
Pierce Junction	470	490
Barbers Hill	135	95
Nacogdoches	30	*30
Dayton	50	50
Markham	80	15
Totals	89,040	90,995
Luling	23,500	24,000
Mirando	9,600	9,600
Lockhart	15,000	12,285
Somerset	3,050	3 055
Misc. South Texas	700	675
Total	51,850	49,615

Condensed U. S. Production for Twelve Months

(Stated in Barrels)

This table is compiled each week by The OIL WEEKLY, and shows daily production average for each state or section.

Daily average for month	*Mid-Continent	North Central Texas	Texas Coastal	Texas Total	Kansas	Okla.	Louisiana	Eastern States	Wyo. Mont. Colo. New Mexico	Calif.	Ark.	Total
March	762,684	284,874	78,567	388,221	69,864	407,946	55,783	97,800	128,352	650,790	119,869	1,917,023
April	777,590	276,595	76,755	380,005	71,015	429,980	54,740	101,250	127,700	649,825	128,750	1,943,270
May	763,320	267,475	74,175	374,915	71,490	424,355	60,655	103,800	127,770	640,930	148,630	1,952,545
June	799,230	260,785	74,355	375,310	74,265	464,175	62,660	105,750	125,735	628,400	157,165	1,993,465
July	815,830	254,665	75,445	378,365	81,545	479,620	63,855	107,175	124,305	620,175	148,655	2,003,695
August	861,640	254,520	75,700	377,045	85,765	521,355	62,595	107,000	123,895	619,200	142,740	2,037,890
September	886,650	253,243	76,953	366,197	86,758	546,647	62,162	107,622	117,345	611,500	131,343	2,029,580
October	855,823	247,222	75,713	359,861	86,884	521,717	62,493	106,600	107,270	605,060	123,235	1,972,902
November	851,733	248,467	71,648	369.621	86,031	517,237	66,117	106,375	91,205	594,000	119,893	1,950,478
December	873,344	267,065	65,437	385,410	88,065	518,213	39.602	106,875	83,472	606,875	111,402	1,959,917
January	906,160	334,305	65,065	448,900	88,390	483,465	56,520	106,200	78,435	602,600	106,280	1,970,350
February	861,130	292,796	63.885	405,195	88,790	479,545	56,825	105,125	87,710	598,375	106,085	1,927,680
March	839,200	301.795	83,800	434,410	84,965	452,440	58.030	100,550	90,900	605,775	112,425	1,939,520
April	836,110	294,040	94,215	435,035	84,360	457,710	57,700	98,250	91,845	602,800	209,840	2,037,545
May	835,350	295,695	100,205	447,080	93,610	446,040	60,945	101,140	91,492	609,200	419,770	2,269,280
June 6	847,275	291,870	98,110	442,240	100,895	454,510	60,625	103,400	89,340	632,500	436,910	2,320,420
June 13	843,445	289,200	97,200	439,930	101,675	452,570	60,610	104,000	84,070	631,000	360,880	2,234,735
June 20	833,170	283,645	91,750	425,040	100,280	449 245	59,735	103.800	92,430	643,500	322,885	2,196,915
June 27	815,820	279,665	90.995	420,275	90,030	446,125	58,940	103,500	84.070	663,000	279,175	2,145,115
July 3	813,168	272,438	89,040	413,328	99,160	441,570	62,075	104,000	94,365	669,000	260,755	2,144,253

*Includes North Central Texas, Kansas, Oklahoma.
NOTE—Wortham, Corsicana-Powell and Mexia production included in North Central Texas.

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

Summarized Review of Field Results

State—	Completions This Week	Completions Last Week	Producers This Week	Producers Last Week	Gas Wells This Week	Gas Wells Last Week	Failures This Week	Failures Last Week	Initial Product'n This Week	Initial Product'n Last Week
Oklahoma	89	126	59	76	5	5	25	45	11,402	16,516
Kansas	40	35	28	20	..	..	12	15	4,998	5,601
*Texas	186	70	125	55	4	4	57	11	19,695	13,935
Arkansas	49	36	43	32	3	2	3	2	57,455	42,725
Louisiana	9	10	5	9	2	..	2	1	470	3,055
Eastern States	148	156	71	87	46	40	31	29	1,389	1,128
Mountain States	21	23	15	19	1	..	5	4	1,890	4,220
California	27	32	27	31	..	..	..	1	13,225	30,610
Totals	559	488	373	329	61	51	135	108	110,524	117,790

*This weeks figures on Texas include North Texas completions which were not available last week.

NOTE—Following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million cubic feet of gas; abn—abandoned; bbls—barrels; b. s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in—inches; lcn—location; m—milling N. S. E. W.—North, South, East, West; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—under reaming; wo—workover; woar—waiting on standard rig.

Texas

GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
Spindle Top—		
Gulf Production Co. Gladys 208	75	875
Felshow & Post S. P. Fee 1	*	475
Batson—		
Ada Bell Oil Co. Paraffine 96	10	510
Hull—		
Yount Lee Oil Co. Stengler 7	40	3050
Higgins Oil & Fuel Co. Taylor 6	*	3015
South Liberty—		
Humble O. & R. Co. Pickett 3-A	100	3475
Pickett 6-C	100	3550
Associated Oil Co. Duessen 2	800	3560
Duessen 3	2000	3440
Gulf Prod. Co. Schade 9	240	3280
Sun Company Schade 11	175	3635
Blue Ridge—		
Gulf Prod. Co. Blakely 11-C	*	3450
Orange—		
Continental Oil Co. Chesson 4 wo	600	4705
Edgerly Pet. Co. Cormier 1	50	3100
Vinton—		
Vinton Pet. Co. Gray 51	75	2425
Gulf Prod. Co. Star Vincent 36	2000	3100
Edgerly Pet. Co. Vincent 50	2200	3200
Richland—		
Graves et al Stubbs 1	40	2995
C. E. Rogers et al Millican 1	*	3210
Barkley & Meadows Hillburn 2	250	2995
Sun Co. Hillburn 2	150	2997
Hillburn 2-A	¶3	2995
Wortham—		
Humble O. & R. Co. J. P. Stubbs 5-A	50	3000
Evans 1	*	3035
Powell—		
Humble O. & R. Co. Fleming 7-B	15	1635
G. C. Kent 18	20	1650
Ramsey 15-A	15	1640
W. Smith 7	25	1650
Skelly Oil Co. Bailey 2	20	1643
J. K. Hughes Hill 11-B	400	2933
Humble O. & R. Co. G. K. Kent 1	15	1653
Ramsey 30-B	2000	2050
Gulf Prod. Co. Ruby Smith 11	25	1630

ELECTRA

Bullington-Lee & Pendleton Jennings 2	†	1595
J. A. Gardner et al Burnett 1	25	1812
Hammon et al McCarty 5-A	15	1221
McCarty 6-A	40	1199
Joe Howell et al Burnett 4	5	1800
Howell-Shaw & Rathke Burnett 3	*	1620
Maer-Staniforth et al Burnett 1, sec 12	*	2005
Magnolia Pet. Co. Sumner 48	*	2075
H&TC RR. 68	175	1660
Perkins & Cullum Burnett 15	†	1815

K-M-A AND IOWA PARK

Electra-Gulf Oil Co. Fassett-Tuttle 1	*	2005
Hill-Roberts & Craig Mitchell 3	*	1538
John Hooser et al Mitchell 3	80	1502
Maer-Staniforth et al A. & K. 5	155	1648
Van Loh 1	*	2001
Underwood et al Pace 3	115	1783

ARCHER COUNTY

Company, Well and Location	Initial Production Bbls.	Depth
Beaudoin et al Dale Bros. 1	*	1855
Mills Bennett Prod. Co. Sorrelle 1	*	1545
Bridwell et al Oil Investment Co. Fee 1	100	1428
Burns et al Cowan 2	*	1505
Burns-Maxson et al L. F. Wilson 3	105	1405
County Line Oil Co. Stampfli 3-B	35	1392
Davis-Hart Oil Co. Roach-Junker 12	25	1232
Fisher-Gilliland et al Rogers 6	*	1400
Gulf Prod. Co. J. F. Rogers 5-A	50	1328
Fastnow & Egger et al Wilson 1	*	1805
Humble Oil & Ref. Co. Brom 2	40	1395
Dr. Hamilton 3	10	1249
Cliff Mooers et al Ickert 3	45	1209
Murchison-Fain & Marland Oil Co. Echols 1, (core)	*	1350
Ray-Featherstone Oil Co. Nichols 10	20	1620
J. P. Rayzor et al T. B. Wilson 1	*	1654
C. M. Root et al Routan 1	60	1263
Stump Oil & Gas Co. T. B. Wilson 1	*	1705
Sunshine Consolidated Oil Co. et al Wilson 2	85	1583
Sun Oil Co. Farmer 11	*	1400
The Texas Co. Hill 4	50	1360
Wichtex Oil Co. L. F. Wilson 5	*	1620

SOUTH VERNON

Continental Oil Co. et al Zipperle 4	185	2326
Ray-Massie et al Bond 2	80	2052

SHACKELFORD COUNTY

McLester et al Moberly 1	*	1200
Phillips Pet. Co. Parrish 3	100	2110
The Texas Co. Diller Bros. 6	100	570
Wilson & Gordon et al Elliott 2	190	2107

YOUNG COUNTY

F. H. E. Oil Co. Dunagan 4	325	1013
Murchison-Fain et al Bloodworth 1.	*	1210
Gulf Prod. Co. F. G. Swain 2	150	1002
Peckham & Fain et al Cheeves 3	*	1015
Simms Oil Co. Cheeves 3	5	1019
Plains Prod. Co. Kilcrease 1	625	988
Texas Unity Oil Co. Hausler 2	50	1077

STEPHENS COUNTY

Brown & Co. Akin 2, dd	¶10-5	3230
Carter & Thomasson et al Langford 4	300	3566
Cull Moorman et al G. I. Pace 1	¶1-550	3618
Quakins Pet. Co. Harmon 10	60	2095
States Oil Corp. Boles 1	¶4	3732
The Texas Co. Parks 41-A	*	3325
Tripplehorn et al Morton 1	¶32½	1856

EASTLAND COUNTY—

H. H. Adams et al Donovan 1	¶1½-30	3910
Pennant Oil & Gas Co. Teston 8	*	2525
States Oil Corp. Hise 1, dd	†	3400

ARCHER COUNTY

Brunson et al Prideaux 1	*	1455
Champion et al P. Browning 2	5	455
Empire Gas & Fuel Co. L. F. Wilson 20-C	100	1627
L. F. Wilson 21-C	125	1628
Gulf Prod. Co. W. P. Ferguson 12-B	5	1766
Hardy Oil Co. Benson 4	*	975

Company, Well and Location	Initial Production Bbls.	Depth
Humble Oil & Ref. Co. Hamilton 2	35	1235
McCarty Oil Co. L. F. Wilson 6-B	35	899
J. R. McCauldin et al L. F. Wilson 1	*	1541
Magnolia Pet. Co. N. Wilborn 3	*	1336
Vic Stampfli 11	65	1360
J. F. Rogers 4	30	1340
Major Pet. Co. Cowan Estate 6	35	1087
Marland & Murchison-Faith Oil Co. Echols 15	50	1338
Echols 2-B	*	1283
Echols 3-B	*	1310
H. Harmel 10-A	25	1320
H. Harmel 11-A	50	1318
Muse et al Lowe 7	45	1255
Lowe 9	80	1236
Phillips Pet. Co. J. H. White 67	185	1611
Prairie Oil & Gas Co. Richardson 21-B	*	1330
Root et al Routan 1	50	1263
Shaw-Rathke et al Hayter 8	25	1316
Texhoma Oil & Ref. Co. K. & K. 8	*	1793
W. H. Taylor 3-A	*	1630
Wellman et al Andrews 1	*	1220
Wichtex Oil Co. L. F. Wilson 1	*	1709

BURKBURNETT

Ascot Oil Co. Roller 28	25	993
Roller 29	40	960
Bonchil Oil Co. Beach 9	20	985

ELECTRA

Apple & Brandeberry et al Jennings 3-B	*	1995
J. J. Moran et al Waggoner 1-A	20	688
Waggoner 2-A	15	705
Texhoma Oil & Ref. Co. Burnett 4-G	*	696
Burnett 1-M	60	1537

K-M-A AND IOWA PARK

Hawkins-Hester et al Watkins 7	*	1830
John Hooser et al Mitchel 2	30	1501
C. E. Litchfield et al Haag 1	*	1810
Magnolia Pet. Co. Maer-Stnaiforth 12	60	1767
Maer-Staniforth 14	65	1767
Maer-Staniforth et al A. & K. 4	95	1648
Stanley McGregor et al Pace 1	*	1860
O'Donohoe & Gates et al A. & K. 3-B	115	1640
Staley-Wynne et al Wolf 1	*	2000

YOUNG COUNTY

Cooper et al H. Haygood 1	*	1019
Hoffer Oil Corp. et al Logan 1	*	1300
Independent Oil & Gas Co. Taack 1	*	1230
Madden-Wolf et al Boren 1	15	1070
Cliff Mooers et al Jeffrey 1	*	1375
Magnolia Pet. Co. Gambrell 19	10	1228
Murchison-Fain & Litchfield Campbell 6-D	200	991
Parker et al Blancett 1,	*	1505
Lee Wilson et al H. Haygood 4	100	1006

SOUTH VERNON

Humble Oil & Ref. Co. W. H. Stephens 26	375	2318
C. F. Kolp et al Waggoner 5, dd	115	2016
L. B. Lawson et al Waggoner 3, dd	325	2320
Waggoner 5	125	2018

Company, Well, Location—	Initial Production Bbls.	Depth
McCamey-Sherrin & Lucey Stephens 6	40	1808
Stephens 15	30	1040
Stephens 17	30	1865
Winnipeg Oil Co. Bond et al 10	20	1334
EASTLAND COUNTY		
Dorothy Oil Co. Hargus 1	*	1660
Davenport 2	†	3380
McMinn 2	240	1480
McMinn 3	100	1490
Kirk-Brewer et al Shugart 6	†	2877
Magnolia Pet. Co. Chas. Allman 4	225	1497
Parsons et al Scott 2	¶5	3365
States Oil Corp. et al Stubblefield 1	*	1400
Teatsorth et al Scott 5	35	1495
Weaver Oil Corp. Ammerman 2	45	3230
Dulin 2	65	3430

Oklahoma

Company, Well and Location	Initial Production Bbls.	Depth
Kay County—		
Comar Oil Co.'s Harvell 1-A, C SW SW NE 21-29-1w, twin	61	1919
Marland Oil Co.'s Hockstetter 2, C NE SE SW 1-26-2w	152	2978
Noble County—		
Comar Oil Co.'s Blubaugh 14w, "A," C SE NE SW 2-24-1w	100	4258
Pawnee County—		
Magnolia Pet. Co.'s Saunder 4, C NE NW SW 4-22-3	50	4241
Magnolia Pet. Co.'s Barns 1, C SE NE NE 1-22-3	*	4348
Garfield County—		
Sinclair O. & G. Co.'s Walker 2, C SW SE NE 13-22-4w (owd)	150	2350
Roxana Pet. Co.'s Schroeder 10-A, C N L SW 18-22-3w (owd)	10	2461
Sinclair O. & G. Co.'s Whitney 6, NWc SW NW NE 18-22-3w	10	1995
Lincoln County—		
Magnolia Pet. Co.'s Schroeder 1, SWc NW SE 34-15-5	200	2455
Union Pet. & Sup. Co.'s Schuble 1, SEc NW 2-14-6	*	2260
Wagoner County—		
A. E. Carder's Atkins 3, SWc NW NE SE 25-18-15	5	1484
T. A. Johnson's Drew 1, SEc NE 26-18-15	*	1120
Tulsa County—		
Riverland Oil Co.'s Inchoe 3; C E L NE NE 34-19-11	80	2304
Munn et al's Jargee 4, C S L SW SW 20-19-12	25	2160
Gladys Belle Oil Co.'s Postoak 2, C E L NW NW 29-19-12	20	2130
Industrial Oil Co.'s No. 3, NEc SW NE NW 6-18-12	80	2044
Pouder & Pomeroy's Strip 9, SWc SE SE NW 16-18-13	10	1205
Hivick & O'Reilly's Walker 5, NWc NE NE SW 16-18-13	35	1203
Houston et al's Stansberry 1, SWc SE NE 33-18-14	10	1766
Thrift et al's Johnson 1-A, C S L NE SE 35-18-14	¶	1358
Thompson & Black's Phillips 1, C W L SE SW 5-16-13	20	2176
T. O. Lillystrand's Childer 2, SEc SW 34-18-14	*	1473
Okmulgee County—		
Ozark Drilling Co.'s Barnett 1, SWc NW 8-15-14	*	2165
W. B. Pine's Griffin 1, NWc NE SW 28-12-14	*	2170
King & Evans' Baker 1, SEc NE NE 5-13-12	*	3350
Independent O. & G. Co.'s Haskins 11, SEc SW NW 27-16-12	150	2559
Sheldon-Houston Oil Co.'s Haskins 1-A, NE NW SW 27-16-12	95	2559
Phillips Pet. Co.'s Rowe 1, SWc NW NE 1-15-12	20	2061
Olean Pet. Co.'s Hogan 3, twin, C E L SE NW 14-15-12	300	2689
Schoenfeldt et al's Hawkins 3, NEc SW 4-11-12	25	1582
Sterling Oil Co.'s Barnett 1, SEc SE 19-12-14 (owd)	50	2866
W. B. Pine's Shepard 3, SWc NW NW 29-12-14 (owd)	30	2835
W. B. Pine's Shepard 4, NWc NW 29-12-14	65	2848
Papoose Oil Co.'s Osborn 17, C S L NE SW 21-15-14	850	2192
Papoose Oil Co.'s Osborn 18, C E L NE SE SW 21-15-14	450	2198
Papoose Oil Co.'s Osborn 23, NWc SW SW 21-15-14	500	2174
E. P. Harwell's Escoe 1, SEc NE NW 1-15-12	*	2080
Savoie et al's Blair 1, NEc NW SW 21-15-12 (owd)	*	2720
Garvin County—		
The Texas Co.'s Derdyn 7, NWc NE 17-1n-3w	25	1570
Grady County—		
Sultan et al's Jenks 1, NEc NE NW 22-5n-7w	¶	2040
Stephens County—		
Green et al's Williams 2, NEc NW 12-1n-7w	¶	920
Magnolia Pet. Co.'s Bartley 2, NWc 20-1s-8w (owd)	¶	2217
Mid-Kansas O. & G. Co.'s Isaac 5, C NW NE NE 19-2s-7w	40	1824
Magerlin et al's Smith 1, C NE SW 14-5-8w	*	....
Huff et al's Hall 7, NWc NE SW NW 29-1s-8w	*	2401
Magnolia Pet. Co.'s Weaver 1, NWc NE SW 29-1s-8w	*	3885
Jefferson County—		
Prairie O. & G. Co.'s Seay 1, C SW NE SW 34-6s-5w	70	1591
Okfuskee County—		
Roxana Pet. Co.'s Maner 3, C NW NW NW 14-10-8	608	3608
Tidal Oil Co.'s King 2, C NW SW NW 14-10-8	700	3576
Jennings et al's Barnett 2, C SE SE SW 33-10-9	50	3326
Josey Oil Co.'s Smith 1, SWc NW SE SW 7-11-11	*	3882
Roxana Pet. Co.'s Haner 4, C NE NW SW 14-10-8	*	3570
Hughes County—		
Josey Oil Co.'s Arbor 3, C S L SW NW 1-9-9	1500	3386
Tidal-Osage Oil Co.'s Harjo 2, C SW SE NE 4-9-11	539	2932
Creek County—		
Atlantic Oil Prod. Co.'s Fry 1, SWc NE SE 14-17-8	100	2290
Bu-Vi-Bar Pet. Co.'s Manley 1, NEc SW 25-17-8	680	2827
Wilcox O. & G. Co.'s Kimble 10, C S L SE NE 20-14-10	200	3360
T. B. Slick's Alec A-1, SWc NE SW 27-17-8	*	3710
Donnelly et al's No. 2 Thompson, NWc NE NE 19-14-10	*	3005
Osage County—		
Pennock Oil Co.'s No. 12, SE NE 32-25-11	*	2520
Steyner Oil Co.'s No. 4, SE SW 24-25-9 (owd)	*	2445
Oklahoma Natural Gas Co.'s No. 623, C E L W½ E½ NW 5-21-11	10	2357
Tidal-Osage Oil Co.'s No. 8, NE NW NE NW 25-24-8	15	2180
Tidal-Osage Oil Co.'s No. 19, SW SE SW SW 27-22-10	15	1219
Tidal-Osage Oil Co.'s No. 34, SE NW SE NW 34-22-10 (owd)	500	2342
Tidal-Osage Oil Co.'s No. 5, SE NE SE SE 26-24-9	5	2100
Western American Oil Co.'s No. 1, SEc 21-24-10	5	1299
Carter Oil Co.'s No. 5, C SW NE NE 20-26-6	420	2992
Skelly Oil Co.'s No. 2, SW SE SW SW 2-27-5	30	3018
Phillips Pet. Co.'s No. 10, C SE NW NW 12-27-5	200	3021
Kansoma Oil & Knupp's No. 6, SW NE SW SE 36-26-11	11	1461
Jackson & Wise's No. 12, NE SE NE SW 24-28-10	7	1785
Owen-Osage Oil Co.'s No. 329, SE NW NE 36-28-10	¶	1878
Wah-Sha-She Oil Co.'s No. 49, SW NE SW 15-29-9	60	1539
Duffield & Howard's No. 2, SW NE SW SE 28-28-11	10	999
Prairie O. & G. Co.'s No. 11, C SW SE SE 12-27-5	380	3000
Waite Phillips' No. 1, C E L NW 2-21-8	*	2685
Flesher-Sterling's No. 1, NW SW NW NE 12-21-11	*	2254
The Texas Co.'s No. 1, SEc 28-22-8	*	2740
Carter County—		
Wirst Franklin's Lohman 3, C NW SE NE 22-2s-3w	450	2546
C. K. Smith's Smith-Davis 3, C SE SE SW 23-2s-3w	100	2981
Healdton Pet. Co.'s Smith 2, C SE NW SW 32-2s-3w	140	2635
Seminole County—		
Pure Oil Co.'s Jackson 3, C SE SW SW 33-11-8	50	3448
Carter & Pulaski's Baker 4, C SE NE NW 33-11-8	689	3411
Prairie O. & G. Co.'s Lester 1, SEc 32-11-8	240	3449
Berry Pet. Co.'s Susey 1, C SW SW NE 31-11-8	*	3640
McMann & Magnolia's Foster 4, C NW NE SW 34-11-8	*	3378
Skelly Oil Co.'s Little 1, C NW NE SE 3-10-8	*	3437
Skelly Oil Co.'s Little 2, C SW NE NE SE 3-10-8	*	....

Kansas

Company, Well and Location	Initial Production Bbls.	Depth
Butler County—		
Skelly Oil Co.'s Moore 1, SWc 12-25-3	25	2785
Bement Oil Co.'s Templeton 1, NEc NW 34-23-6	*	2804
Connelly et al's Betts 1, SEc NE 25-25-4	*	734
Joe Liggett et al's Moffitt 1, SWc Lot 22, 18-25-8	*	2817
Tom Miller's Drum 1, NEc NW NE 33-6-8	*	2680
Cowley County—		
C. E. Roth & Co.'s Hanna 6, NWc NE NW NE 4-30-8	25	2175
Paul Trees' Mahanna 2, SEc W½ Lot 20, 6-30-8	127	3129
T. B. Slick's Conrad 1, SEc NW 19-32-3	7	3810
J. A. Hull Co.'s Tomkinson 1, SEc 14-32-4	5	3018
Waite Phillips & Marland's Johnson 4, NEc SE SE 20-33-3	459	3246
Waite Phillips & Marland's Backus 6, SEc NW NW 20-33-3	10	3265
Derby Oil Co.'s Joslin 1, NEc SW SE 11-30-4	*	3263
Elk County—		
C. E. Roth & Co.'s Porter 10, C W L E½ SE 12-29-8	100	2048
Barnes Drilling Co.'s Mullendore 2, NEc SW SW 3-30-9	60	2320
York State Oil Co.'s Fleck 1, NEc SW 21-30-11	10	1223
Ohio Fuel Oil Co.'s Clifton 1, SWc NE NE SW 22-29-9	*	1450
P. F. Zock's Dunnell 1, NEc NW NE 18-30-10	*	2558
R. G. Gillespie's Knable 1, NEc 12-31-10	*	2230
Greenwood County—		
Phillips Pet. Co.'s Warrenburg 2, SWc SE SW 21-22-10	250	2185
Sinclair O. & G. Co.'s Browning 18, SWc NE SE 19-22-10	150	2350
Tidal Oil Co.'s Kipfer 3, NEc SE NE 11-22-11	400	1818
Empire G. & F. Co.'s Bush 2, NWc SE 12-22-11	240	1819
Robertson, Hayes et al's Scott 1, NEc 25-23-8	900	2640
Greenland Oil Co.'s Shambaugh 1-C, SEc NE NW 2-23-9	110	2408
Skelly Oil Co.'s Shambaugh 2, NEc SE NW 2-23-9	140	2372
Shambaugh 3, SWc SE NW 2-23-9	450	2361
Skelly & Emerald's Teeter 2, SWc NW NE 16-23-9	150	2068
Teeter 3, NWc SW NE 15-23-9	300	2370
Mid-Kansas O. & G. Co.'s Martindale 28, NWc SE SW 31-23-10	125	2384
Empire G. & F. Co.'s Clopton 12, NEc SE NW 8-23-11	35	1940
Arkansas Fuel Oil Co.'s Marshall 9, SEc NW 1-24-9	110	2280
Marshall 10, C SW 1-24-9	125	2321

Company, Well, Location—	Initial Production Bbls.	Depth
Gypsy Oil Co.'s Nixon 8, SWc NW SW NE 34-24-9	60	2200
Mid-Kansas O. & G. Co.'s Ladd 11, NWc NE SE 19-25-9	75	2412
Davis, Alyard et al's De Malorie 4, SWc 7-22-11	*	2355
Empire G. & F. Co.'s Green 1, SEc NW SW 12-22-11	*	1976
John Rogers Co.'s Allen 1, SWc NE SE 18-23-11	*	2185
Russell County—		
Muddy Oil Co.'s Kellman 1, SEc SW NW 5-12-15w	250	2786
Midwest Refg. Co.'s Oswald 34, SWc SE NW 8-12-15w	300	2955
Wilson County—		
Callahan et al's Ford 1, NEc SE 31-29-17	*	1356

California

Long Beach—		
A. T. Jergins' Jackson 2	425	5001
Huntington Beach—		
Standard's Farnsworth 4	60	3566
No. B-31	100	4504
Petroleum Midway's Vollmer Meyers 2 (wo)	110	4304
Rio Bravo's McKay 2 (wo)	100	3696
Torrance—		
General Petroleum's Carson 1 (wo)	25	3376
Carson 9	10	3365
Poggi 1 (wo)	35	3836
Petroleum Securities' Marble 18 (ow)	80	3765
C. C. M. Oil Co.'s Del Amo 54	120	3650
Del Amo 27	135	3660
Torrance Co. 26 (wo)	55	3725
Universal Cons.' Moore 8 (wo)	75	2775
Moore 4 (wo)	100	3780
Superior's Joughin 62	95	3790
Inglewood—		
Petroleum Securities' Rubel 7	3500	2680
Rubel 11	2500	2505
Pacific Oil Co.'s Baldwin 21	525	2450
Shell Co.'s Ringe 6	2350	2700
Associated's Vickers 11	200	2698
Vickers 29	500	2239
Pan-American's Senous 1	50	1885
Richfield—		
Standard's Kraemer 2-3	500	4768
Rosecrans—		
Geo. F. Getty's No. 2-A	500	4440
No. 1	100	5303
Elbe Oil & Dev. Co.'s No. 2	500	4440
Delendrecies' Athens 1	475	4358

Mountain States

WYOMING

Salt Creek Field—		
Wyoming Associated Oil Corp.'s No. 6-A, SW¼ 24-40-79	65	1454
No. 24-A, NW¼ 24-40-79	70	1713
No. 15-A NE¼ 2-39-79	100	1710
Salt Creek Consolidated Oil Co.'s No. 36-AX, SW¼ 27-40-79	75	2587
No. 24-A, NW¼ 11-39-79	50	2141
Prairie Oil & Gas Co.'s No. 11, 30-40-79	50	2500
No. 3, 6-39-78	*	2017
Buffalo Anticline—		
Prairie Oil & Gas Co.'s No. 1-B, 18-27-95	*	1745
Mahoney Dome—		
Producers and Refiners Corp.'s No. 1, 35-26-88	¶	....

MONTANA

Kevin-Sunburst Field—		
Hibbing-Sunburst Oil Co.'s No. 1, 1-34-2	100	....
Big West Oil Co.'s No. 9-A, NE¼ 31-35-1	1200	1460
Red Deer Oil Co.'s No. 5-A, SW¼ 29-35-1	50	1560
Mid-Northern Oil Co.'s No. 4-S, NW¼ 4-35-2	*	1740
Oneil Bros.' No. 1-S, SW¼ 4-35-2	*	1755
Western Drilling Co.'s No. 1-W, SW¼ 21-35-1	*	1580
Seattle & Foster's No. 3S, SE¼ 5-34-2	30	1474
Ethridge-Basin Oil Co.'s No. 1-DG, NW¼, 9-34-2	25	1473
Chisholm Interests' No. 2-A, SE¼ 31-35-1	50	1454
Essex Oil & Gas Co.'s No. 3-B, SE¼ 30-35-1	25	1450

COLORADO

Company, Well and Location	Initial Production Bbls.	Depth
Thornburg Dome—		
Marland Oil Co.'s No. 1, 21-3-91	¶	2023
Wellington Dome—		
Producers & Refiners Corp.'s No. 1-B, 16-10-69	*	2240

Louisiana

Caddo Parish—		
Chew et al's State 2, 34-21-15	200	1990
Lawton et al's Weiss 4, 15-21-15	25	1690
Texas Pacific Ry. Co.'s Fee 1, 15-17-14	*	975
Total, 3 wells	225	
Bull Bayou Field—		
Fortuna Oil Co.'s Robinson 1, 22-11-12	10	2997
The Texas Co.'s Christine 30, 6-12-11	*	1810
Total, 2 wells	10	
Monroe Gas Field—		
Natural Gas Products Co.'s Tensas Delta 5, 14-22-4e, Morehouse Parish	¶4	2280
Waskom Gas Field—		
C. H. Lyons et al's Lee 1, Lipscomb H-R Survey, Harrison County	¶10	1925

Arkansas

Smackover Field, Ouachita County—		
Gulf Refining Co.'s Bennett 3, 32-15-15	150	2400
Flenniken 12, 5-16-15	600	2388
Umstead A-11, 33-15-15	1200	2360
Umstead A-12, 33-15-15	1750	2377
Scott 1, 34-15-15	¶10	2582
Houston Oil Co.'s Reynolds 3, 27-15-15	2500	2591
Humble Oil & Refining Co.'s Farris 5, 34-15-15	400	2393
Louisiana Oil Refining Corp.'s Haltom 1, 27-15-17	25	2365
Marine Oil Co.'s Snyder 8, 34-15-15	1000	2385
Phillips Petroleum Co.'s Farris 5, 34-15-15	3000	2377
Joyce 12, 33-15-15	800	2403
Roxana Pet. Co.'s Williams 4, 34-15-15	15000	2372
Simms Oil Co.'s Hildebrand 5, 28-15-15	1750	2479
Hildebrand 7, 28-15-15	600	2445
E. Johnson 1, 34-15-15	¶25	2567
Standard Oil Co.'s Bennett 5, 33-15-15	600	2390
Griffin 6, 33-15-15	600	2380
Umstead 22, 33-15-15	2000	2370
Southern Crude Oil Purch. Co.'s Joyce 3, 34-15-15	1000	2391
Sure Oil Co.'s Joyce 2, 34-15-15	400	2398
Joyce 3, 34-15-15	500	2375
The Texas Co.'s Johnson 5, 3-16-15	7000	2382
Zeller & Brown's Myatt 2, 22-15-17	20	2245
Smackover Field—Union County—		
Bailey & Trimble's Lawton 4, 10-16-15	500	2462
Federal Pet. Co.'s Flenniken 3, 6-16-15	200	2378
Flenniken 10, 6-16-15	250	2395
Gulf Refining Co.'s Flenniken 16, 5-16-15	500	2364
Goodwin A-5, 5-16-15	*	2435
Murphy 29, 4-16-15	70	2370
LeCroy 1, 16-16-15	*	2490
Murphy 6, 8-16-15	240	2400
Houston Oil Co.'s Reynolds 3, 27-15-15	2500	2590
Humble Oil & Ref. Co.'s Flenniken 7, 6-16-15	500	2387
Imperial Oil Co.'s Murphy 1, 9-16-15	¶10	2325
Keen & Woolf's Murphy 4, 9-16-15	600	2464
Laurel Oil & Gas Co.'s Houston 1, 12-16-16	1000	2610
Natural Gas & Pet. Co.'s Murphy A-4, 17-16-15	1000	2508
Pure Oil Co.'s Meriwether 1, 6-16-15	1500	2386
Phillips Pet. Co.'s Thompson A-1, 7-16-15	*	2120
Rogers et al's LeCroy 1, 17-16-15	800	2490
Roxana Pet. Co.'s Bilyieu 6, 9-16-15	250	2450
Southern Crude Oil Purchasing Co.'s Graves 6, 3-16-15	500	2370
Sun Oil Co.'s Hatfield 3, 6-16-15	2000	2370
Hatfield 4, 6-16-15	700	2410
Hays 15, 3-16-15	500	2370
The Texas Co.'s Alphin 7, 3-16-15	600	2542
Calloway 6, 4-16-15	300	2378
Thurman et al's Wilson 3, 6-16-15	2000	2398
Wetherbee et al's McGraw 2, 7-16-15	50	2297
Total, 49 wells	¶45-57,455	

Eastern States

PENNSYLVANIA

Greene County—		
Peoples Natural Gas Co. Howard Hrs. 1	*	....
Caseman Bros. 1	¶2	....
Concord-Nineveh Gas Co. C. H. Andrews 4	¶1¼	....
Alfred Ruton 1	10	....
Philadelphia Oil Co. Spencer hrs. 1	¶2	....
Manufacturers Light & Heat Co. Charles Webster 2	*	....
Allegheny County—		
Davis Oil & Gas Co. Davis hrs. 4	2	....

WEST VIRGINIA

Kanawha County—		
Cabin Creek Gas Co. Dave Ward 52	¶6	....
Dave Ward 53	¶2	....
Dave Ward 55	¶9	....
Blue Ridge Oil & Gas Co. W. E. Hugen 1	¶3	....
J. W. Straughn 1	¶4	....
United Fuel Gas Co. S. B. Mooney 1	¶12	....
Paint Creek Terminal 1	¶1½	....
C. E. Bergman 1	¶3	....
G. L. Cabon C. A. Veasey 1	¶4½	....
Mildred Gas Co. Jabe Huddleston 1	¶5	....
Mullin & Davis Huddleston-Carner 1	¶4½	....
Eureka Oil & Gas Co. J. E. Johnson 1	¶4	....
Montgomery Gas Co. J. M. Hansford 1	¶2	....
Ohio Fuel Gas Co. Wm. Clatworthy 2	¶1	....
Ritchie County—		
Hope Natural Gas Co. M. L. Ehrel 2	2	....
Parkersburg Oil & Gas Co. John Allender 1	5	....
Lucas & Matheny Robert Nichols 1	¶1¼	....
J. O. Netzer P. M. Shaw 11	*	....
Hope Const. & Ref. Co. Ira Summerville 1	¶¼	....
McCall Oil & Gas Co. G. W. Brissy 1	¶1¼	....
Boone County—		
Owens Bottle Machine Co. G. W. Walker 2	¶1	....
Boone Kanawha Land Co. 8	¶1	....
Fuel Land Co. 1	*	....
South Penn Oil Co. Yawkey-Freeman 1	*	....
The Pure Oil Co. Williams Coal Co. 222	25	....
Harrison County—		
Hope Natural Gas Co. G. N. Sunbus 1	¶½	5114
Hope Const. & Ref. Co. Mary D. Lynch 1	¶2½	....
Reserve Gas Co. Damuel Fittro 1	¶3	3218
Grasselli Chemical Co. Robert Shuttleworth 2	*	....
Dorsey Cord R. E. Paynes 1	*	....
Wood County—		
Baker & Co. J. M. Bose 1	*	....
Power Oil Co. Volcanic tract 107	2	....
Henderson Oil Co. Drain hrs. 7	1	....
Pleasants County—		
Hall & Co. John Messer 1	3	....
Howard Hall William Wright 1	*	....
Cabell County—		
Commercial Gas Co. W. F. Walker 1	¶½	....
Star Pet. Co. Walter Swann 1	¶¼	....
Clay County—		
Virginia Gasoline & Oil Co. J. B. Caston 2	125	....
Doddridge County—		
Murphy Oil Co. A. K. Rollins 2	15	....
Wetzel County—		
Hope Const. & Ref. Co. Theodore Miller 1	5	....
Lewis County—		
Mud Lick Oil & Gas Co. George Arnold 1	¶3	....

Company, Well, Location—	Initial Production Bbls.	Depth
Roane County—		
Carter Oil Co. L. S. Morford 1	3	
Marshall County—		
Manufacturers Light & Heat Co. G. W. Miller 3	¶2	
Monongalia County—		
South Penn Oil Co. J. Eddy 6	¶2½	3058
Tyler County—		
Williamson Oil Co. O. F. Smith 1	*	
Logan County—		
South Penn Oil Co. Yawkey-Freeman 8	*	

KENTUCKY

Barren County—		
Lew J. Emery Jr. Sons Co. Depp-Greer 12	12	
Star Oil Co. Ritchie 27	9	
Ritchie 28	10	
Consolidated Gas Co. C. A. Turner 1	2	563
Ziegler Bros. Green 2	*	500
Wood Oil Co. Redman 2	3	520
Allen County—		
Chandler & Co. Chandler 5	10	196
Work & Son Lyle 10	8	300
Unique Oil Co. L. Bocuher 8	3	500
Bastrus & Co. Emberton 1	*	348
Owensboro District—		
Roy Diamont W. B. Wells 1	5	
Pennsylvania-Indiana Oil Co. Simpson 1	3	
Jess Swope 5	35	
Warren County—		
T. A. Sheridan G. Davenport 7	10	500
Rockfield Oil Co. Kimbro 6	7	590
Pryor & Caskey Price 7	5	470
Johnson-Magoffin Counties—		
Bed Rock Pet. Co. Patrick 3	*	
Hudson & Collins Oscar Wheeler 2	1	
Petroleum Exploration Co. Abe Caudill 28	3	
Cumberland-Monroe Counties—		
McClintock Oil Co. Maud Blythe 4	90	
Judio Co. Inc. T. Bow 3	10	
Boyd County—		
Samuel J. DeBond Summitt 1	20	
Owsley County—		
Henry Oil Co. Daniels-Foreman 3	15	1104
Metcalf County—		
A. W. Richards Bell 3	15	290
Clay County—		
Standard Oil Co. of Kentucky Unknown 1	*	1560
Wayne County—		
F. M. Taylor Fairchilds 1	*	

SOUTHEASTERN OHIO

Washington County—		
Dunham Bros. Joe Butcher 1	*	
Gordon & Co. Charles Merrill 1	*	
Muskingum Gas Co. M. G. Lawton 1	¶1½	
E. L. Yager Trustee M. W. Winland 1	¶¼	
O. S. Reckard & Co. F. F. Dana 8	2	
Dailey & Co. O. O. Newlin 3	2	
Buckley & Son J. D. Wynn 1	*	
Bell Oil & Gas Co. J. C. Bosworth 23	*	
Newhart & Co. Homer Burkhart 1	*	
Morgan County—		
The Pure Oil Co. R. E. Hughes 1	30	
Columbiana County—		
Ben Oil Co. Luther Powell 6	2	
Tuscarawas County—		
Logan Gas Co. Adam Cline 1	*	
Noble County—		
Robert Knott & Co. Matthew Cisler 1	¶¼	
Belmont County—		
Natural Gas Co. of West Va. J. A. Clarke 1	*	

CENTRAL OHIO

Licking County—		
Edward H. Everett Co. U. G. Porter 2	290	
A. H. Heisey Gas Co. C. H. Bolin 4	¶2	
E. J. Edmonds & Co. Robert Stair 6	3	
Moore & Adams T. L. Stevens 13	¶1	
Midland Oil Co. Murray-Bowser 4	¶1	
Holmes County—		
Norwood Oil Co. W. R. Parsons 2	20	
East Ohio Gas Co. M. G. Bird 3	*	
Walter L. Pyers 1	¶¼	
Ohio Oil Co. A. W. Schoonover 1	¶3½	
Empire Gas & Fuel Co. Byron Kendall 1	*	
Athens County—		
Ohio Fuel Supply Co. Nancy E. Clark 1	¶½	
Bell & Cooper Tim Russell 1	*	
The Pure Oil Co. Minnie Baker 1	3	
Lorain County—		
East Ohio Gas Co. W. W. Goodman 1	¶½	
Empire Gas & Fuel Co. Oliver Leitner 1	¶2	
Dillon & Frederick John Offenberger 1	¶4½	
Knox County—		
The Pure Oil Co. W. D. Heston 1	100	
East Ohio Producing & Ref. Co. H. S. Sniveley 15	2	
Perry County—		
Ohio Fuel Corp. Charles Trimmer 4	65	
Empire Gas & Fuel Co. Anna Mohler 1	¶½	
Hocking County—		
Gordon Oil Co. James Brimmer 2	10	
Ohio Falls Oil & Gas Supply Co. John Hockins 3	8	
Cashocton County—		
Carter Oil Co. John Conkle 1	20	

Company, Well and Location	Initial Production Bbls.	Depth
Medina County—		
Ohio Fuel Gas Co. Gilbert Kovach & Co. 1	¶1	
Jackson County—		
Ohio Fuel Supply Co. C. W. Hazlett 1	¶5	
Fairfield County—		
Carter Oil Co. S. J. Kelsey 1	¶1½	

NORTHWESTERN OHIO

Wood County—			
Ohio Oil Co. Northwestern Ohio Gas Co. 50	40	1331	
Charles Mercer 22	10	1422	
Charles Gerdes 1	*	1308	
H. F. Lang H. F. Lang 3	4	1268	
Charles F. Zeising & Co. Bringman Bros. 2	3	1390	
Auglaize County—			
Crystal Oil Co. Joseph Wohrmyer 1	50	1300	
Ohio Oil Co. Charles J. Haeseker 9	3	1300	
Iron Mountain Oil Co. H. Birk 1	1	1312	
Sandusky County—			
B. J. Rineboldt Rineboldt 7	4	1304	
Netcher-Magsig Oil Co. R. Netcher 3	2	1300	
Jake Smith Amelia Kuhlman 1	3	1305	
Hancock County—			
Porter & Hovis Lem Aurand 17	10	1317	
Janera Oil & Gas Co. W. W. Matter 1	1	1320	
Allen County—			
Joseph B. Mayer A. P. Huber 1	8	1321	
Indiana Oil Co. Inc. Charles Kill 1	2	1317	
Ottawa County—			
Sherman & Richards Silas Ames 8	12	1330	
Van Wert County—			
Jones Drilling Co. A. N. Craft 1	5	1298	
Lucas County—			
Ohio Oil Co. R. H. & M. A. Eck 15	2	1355	
Shelby County—			
Bollheimer Oil Co. A. Bollheimer 3	2	1297	

INDIANA

Gibson County—		
C. P. Erni & Co. R. M. Coskey 1	*	1362
Sullivan County—		
Billman & Co. Edward Lambert 1	*	825

ILLINOIS

Clark County—			
Trenton Rock Oil & Gas Co. S. McClelland 7	75	1420	
William Carper 5	60	1434	
Gillette Oil Corp. J. C. Hanks 1	20	1400	
H. C. Ferriman & Co. Thomas Ramsey 3	10	600	
Hood & Co. Briscoe hrs. 4	1	410	
Lusk, Stratton & Co. G. L. Wiser 5	*	415	
Marion County—			
National Drilling Co. and Bays Mackey-Miller 2	*	800	
Petro Oil & Gas Co. A. W. Webster 5	30	772	

WILDCATS FROM ALL SECTIONS

Coastal Wildcats

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Fort Bend County—		
Rycade Oil Corp.'s Flessner 1	*	
Marland Oil Co. of Texas' H. P. Lockwood 3	*	1050
Jefferson County—		
Gulf Prod. Co.'s Thomas A-1, at Fannette, near Hampshire	*	

DRILLING REPORT

FORT BEND COUNTY—Gulf Prod. Co.'s Moore 4, John M. Moore lease, dr at 1700 ft. James W. Rich et al's Moore-Hager 2, at Big Creek, 300 ft NE No 1, SE side of dome, waiting for rig. Fritz Meier 1, 800 ft E of SW cor and 200 ft N of S line of F. Meier 207.7-acre tract, stuck drill stem at 3022 ft gumbo; Fritz Meier 2, 1550 ft E of SW cor and 200 ft N of S line of F. Meier 207.7-acre tract, dr at at 1155 ft gumbo and lime. Texas Co.'s G. W. Armstrong 1, James Scott sur, 50 ft to N and W lines SW of Needville, dr at 1320 ft. Pathfinder Oil Co.'s Pickney 1, set cas at 3740 ft.

GALVESTON COUNTY—Gulf Prod. Co.'s George E. Smith 3, at High Island, 300 ft E No. 2, waiting for water.

HARRIS COUNTY—Texas Co.'s Warren 3, 3 miles S Hockley, 750 ft NW No. 2, dr 3368 ft in gumbo. Rycade Oil Corp.'s Northsworthy 1, dr at 550 ft in gravel and lime.

JACKSON COUNTY — Houston Oil Co.'s Rose & Sample 1, 7 miles W. Edna, Rose & Sample tract, dr at 3090 ft; Westoff 1, 1659 ft N and 50 ft W of N cor George Hecht 200-acre tract, Pedro Gallardo sur, dr at 3050 ft. Vanderbilt Pet. Co.'s Seliner 1, 4 miles N of Vanderbilt, C. W. Hall subdivision of Harwood Burns ranch, dr below 2950 ft.

JEFFERSON COUNTY—Houston Oil Co.'s Fanny Crow 1, dr 1490 ft in shale. Gulf Co.'s Thomas 2, at Fannette, near Hampshire, bldg dk.

MATAGORDA COUNTY—Gulf Prod. Co.'s Craig 1, rigging up. Rycade Oil Co.'s Gray 3, at Markham, 1050 ft S of NE cor and 500 ft W of E line, blk 2, W. H. Gray land, dr at 1719 ft. Bryan Prod. Co.'s Bryan 1, dr at 3870 ft.

WALKER COUNTY—Big Ridge Oil & Gas Co.'s No. 1, at Weisers Bluff, 14 miles N Huntsville, 12 miles W Riverside, Eastham sur, sd; No. 2, sd; No. 3, 8 miles SW No. 2, between Nelson and South Bedias Creeks, dr 500 ft.

WHARTON COUNTY — Gulf Prod. Co.'s Felder 3, 20 ft to W and 1735 ft to N lines, blk 3, S Ingram sur, dr at 4640 ft. Texas Co.'s Taylor 2, 1100 ft SE No. 1, at Boling, dr at 1720 ft.

Texas Panhandle Wildcats

COMPLETIONS

Carson County—		
Crosbie Oil Co. Burnett 2	200	3931
Hutchinson County—		
Panhandle Ref. Co. et al Dial-Perkins 1	300	3060

North Texas Wildcats

COMPLETIONS

Company, Well, Location—	Initial Production Bbls.	Depth
Baylor County—		
Shaw-Rathke et al Mills 1.....	10	1452
Cooke County—		
Godley Oil & Gas Co et al M. E. Florence 1	*	3552
Montague County—		
The Texas Co. Isaac Gist 3-A, dd..	*	2238

East Central Texas Wildcats

COMPLETIONS

Kaufman County—		
Cranlll-Kirby & Humphreys Corp. M. J. Tharp 1	*	3353
Navarro County—		
Rogers et al Milligan 1.....	*	3200
Barkley-Meadows et al Hilburn 2..¶1-175		2992
W. A. Graves et al V. H. Stubbs 1, (North Currie field)	60	2991

DRILLING REPORT

ANDERSON COUNTY—Roser Pet. Co. et al's Brooks-Auld 2, dr 3511 ft; J. K. and L. P. Daniel 1, Chas. Gilmore sur, dr 3007 ft.

BOWIE COUNTY — Daulby Springs Oil Co.'s Perky 1, sd 3208 ft McCullough & Roell's Williams 1, Levi Rice sur, dr shale 2805 ft.

FALLS COUNTY — Harrison-Bletch & Thompson's B. & T. 1, W. A. Mitchell sur, dr lime 3560 ft. Harrison et al's Bargainer 1, Jos. Mathews sur, dk. Mook-Texas Oil Co. et al's J. Woodruff 1, S. C. Robertson League No. 4, lcn.

HENDERSON COUNTY—Fred Haynes et al's E. G. Bounds 3, H. Jeffreys sur, rig.

HOPKINS COUNTY — Gulf Prod. Co.'s Susan B. Pierce 1, Jas. A. Craft sur, dr 820 ft. Stough & Potts et al's Fitzgerald 1, John Binnion sur, sd 2205 ft.

HUNT COUNTY—Tallal & Kelsey et al's J. W. Barnett 1, Alex Smith sur, sd 2046 ft.

KAUFMAN COUNTY — Cranfill-Kirby & Humphreys Corp.'s M. J. Tharp 1, G. P. Dike sur, chalk at 2508-2818 ft, dr salt water 3353 ft.

LIMESTONE COUNTY—Eisenmayer et al's Rivers 1, B. C. Abbott sur, sd 1190 ft. Hurdleston et al's Gill 1, sd water 2750 ft. Magnolia Pet. Co.'s Rich Kennedy 1, dr 3058 ft. Pure Oil Co.'s Stockton 1, lcn. E. L. Smith Oil Co.'s Jones 1, Kosse Dist., rig. Wells et al's Richardson 1, dr 100 ft. Swearingen et al's Dean 1, rig. Yoder et al's Saunders 1, sd water 2200 ft.

MILAM COUNTY—Magnolia Pet. Co.'s M. M. Kime 1, S. P. Carson sur, dr hard lime 3630 ft. J. K. Hughes et al's Rebecca Foster 1, lcn.

NAVARRO COUNTY—Atlantic Oil Prod. Co.'s Talley 1, top chalk 2127 ft, dr chalk 2300 ft. Barkley-Meadows et al's Hilburn 2, dr sand 2992 ft; Hilburn 3, top chalk 2124 ft, dr chalk 2565 ft; Hilburn 4, dk. W. A. Graves et al's Stubbs 2, rig. Gulf Prod. Co.'s Hilburn 2, top chalk 2215 ft, dr chalk 2425 ft. Moore Bros. et al's Mrs. Quimby 1, NW of Currie, dr 2810 ft. Oxford Oil Co.'s Phipps 1, lcn; Phipps 2, dr 650 ft. Sun Oil Co.'s Hilburn 2, flowing oil 2979-94 ft; Hilburn 3, rig; Hilburn 1-A, chalk at 2122-2560 ft, dr 2920 ft; Hilburn 2-A, bailing 2960-93 ft; H. A. Swink 1-B, top chalk 2125 ft, dr chalk 2280 ft; H. A. Swink 1, dd, coring sand 3090 ft. Snowden & McSweeney's Longbotham 13, rig. C. E. Holt et al's Madewell 1, SW of Richland, rig. Elliott et al's W. J. Westbrook 1, Kerens Dist., sd 3711 ft. Gilbert Johnson et al's Greer 2, Bazette Dist., top chalk 2650 ft, dr chalk 2745 ft. Prince & Vacuum Oil Co.'s S. M. Huggins 1, Bazette Dist., chalk 2611-2872 ft, dr 2910 ft. Simms & Sun Oil Co.'s Elliott 1, Richland-Navarro Dist., spudding. King State Oil Co.'s J. W. Laird 1, NW of Wortham, sd water 2240 ft. Strotman et als' Bounds 1, North Currie Dist., making one million ft gas 3105-27 ft.

ROBERTSON COUNTY—Simms Oil Co.'s B. F. Stidham 1, J. P. Jones League, rig.

Central West Texas Wildcats

COMPLETIONS

Company, Well, Location—	Initial Production Bbls.	Depth
Brown County—		
Cal-Bro Oil Synd. Prater 1	20	1318
Gillman et al Newton 12	800	1090
Gillman & McMurray et al W. H. G. Chambers 1	70	1228
Teston 4	65	1253
Moore 4	20	1243
Moore et al Baxter 1	195	1302
Prairie Oil & Gas Co. Gaines 7....	45	1287
Reagan County—		
Big Lake Oil Co. University 26....2400		2970

DRILLING REPORT

BROWN COUNTY — Cal-Bro Oil Synd.'s Prater 2, lcn. Canyon Oil & Gas Co.'s Ellsberry 4, rig. Gillman et al's Newton 11, rig; Newton 13 and 14, spudding; Newton 15, rig; Newton 16, lcn. Gillman & McMurray's Teston 5, rig. Gillette et al's Prater 5, dr 1110 ft. Howell & Houseman's Helms 1, sd 975 ft. Huffman et al's Armstrong 1, dr 1305 ft. Ingleright et al's Eubanks 1, lcn. Mendenhall et al's Newton 6, rig; Newton 7, ur 975 ft. Moore et al's Kilgore 1, fsh 880 ft; Chambers 2, rig; Baxter 2, spudding; Baxter 3, lcn. Moore & Wilson's Gafford 4, dr 410 ft. Prairie Oil & Gas Co.'s Armstrong 1, dr 1115 ft; Gaines 6, dr 965 ft; Gaines 8, fsh 1415 ft; Newton 11, dr 980 ft. Simms Oil Co.'s Gaines 1, sd 1485 ft. Stone et al's Byrd 1, dr 215 ft. Ward Oil Co.'s Windham 1, sd 2600 ft. Rhodes & Higher's Prater 8, dr 730 ft.

CALLAHAN COUNTY—Mook-Wakefield & Canyon Oil & Gas Co.'s McDonough 1, dr 1210 ft. Nichols et al's Davis 1, co after shot 1785 ft. Urban et al's Finley 1, dr 1415 ft.

PALO PINTO COUNTY — Burton-McKee Oil Corp.'s Strawn Coal Fee 4, dr 3495 ft. J. D. Crawford & Singleton's L. Smith 1, sd 3028 ft. Jack Dalton Oil Co.'s Dalton 6, dr 3580 ft. Hughes et al's Dalton 1, dr 500 ft. E. T. Hart et al's Cardwell 2, dr 1860 ft. Moore & Sneboldt's Slemmons 1, rig; Stuart 3, lcn. Nelson Oil Synd.'s Owens 1, dr 940 ft. Pender Prod. Co.'s Slemmons 3, rig; Rasmussen 2, rig.

BREWSTER COUNTY—Green Valley Oil Corp.'s J. P. Wilson 1, sec 8, blk 212, sd 1860 ft.

COKE COUNTY—West Virginia Oil Marketing Assn.'s J. R. Mims 1, dr lime 3265 ft.

CRANE COUNTY — Texas Development Co.'s Jax Cowden 2, sec 14, blk "X", Clark machine.

CROCKETT COUNTY — Humble & Marland's L. P. Powell 1, flowing 22 bbls, erecting pump, td 2647 ft; Harris Bros. 1, lcn in NE cor sec 12, Washington County RR. sur, blk 3. Cumberland Oil & Gas Co.'s Couch 1, bldg rig at C NE¼ sec 18, D. & S. E. RR. and T. T. RR. Co. sur, blk Q-R. Crockett Drilling Synd.'s Robt. Massey 1, dr 1860 ft; J. M. Shannon 2, spd and sd. Jacobs & Williams' (was Red Ball) University 1, sec 5, blk 29, spd and sd for fuel. Wm. Shaffer et al's University 1, SE cor sec 9, blk 47, materials. J. C. Cook et al's (Wilcox) University 1, sec 14, blk 29, rig.

CULBERSON COUNTY — The California Co.'s Watkins et al 1, fsh 15½-inch bit, td 934 ft. Grisham et al's Grisham 1, dr 550 ft. Pure Oil Co.'s Mrs. G. H. Guard 1, lcn is at center SW¼ sec 12, blk 63, TP RR sur, Twsp. 2.

JEFF DAVIS COUNTY—Bill Little et al's Denton 1, 15 miles W of Valentine, lcn. Claude Byler et al's Wingo 1, lcn at center NW¼ of E½ of sec 20, blk G-25

GARZA COUNTY—Gulf Prod. Co.'s J. B. Slaughter 1, dr 1270 ft.

GLASSCOCK COUNTY—Gulf Prod. Co.'s L. S. McDowell 2-C, sec 30, blk 34, rig. Marland Oil Co. et al's G. Mook 1, lcn in SE cor sec 27, blk 33, TP RR sur, T-3-S.

HOWARD COUNTY—Deep Rock Oil Co.'s W. T. Scott-Hyman 1, lcn in center SE¼ sec 88, blk W&NW RR sur.

IRION COUNTY—Chas. Denny et al's D. E. Hughes 1, sd 1470 ft. W. A. Stout et al's J. D. Sugg 1, sd 1830 ft.

KENT COUNTY—C. F. Greenwood & Marland Oil Co.'s J. E. Kuteman 1, sec 21, blk 4, fsh lugs 3065 ft.

LOVING COUNTY—Rio Grande Oil Co.'s Sid Kyle 1, sec 12, blk 57, TP RR sur, lcn. P-V Petroleum Co.'s Russell 1, dr 3280 ft.

MITCHELL COUNTY — The California Co.'s Abrams 9, dr 1300 ft; Butler 2, dr 1755 ft; Missouri State Life Fee 1, dr 190 ft; H. C. Miller 1, dr 690 ft; Womack 1, dr 1235 ft. R. G. Barnum and G. A. Henshaw's Scott Estate 1, rig in SE¼ sec 32, S. P. Ry sur, blk 17. Morrison-Thompson's Womack 1, spudding. Marland Oil Co.'s D. H. Snyder 1, lcn in NE cor sec 38, blk 30, TP RR. sur T-1-S. Eastland Oil Co.'s Keynard 4, rig. Magnolia Pet. Co.'s W. H. Badgett 1, trace oil 2430 ft, dr 2540 ft; Mary Foster 1, dr 1410 ft. S. A. Sloan et al's Scott Estate 1, dr 2600 ft.

MARTIN COUNTY — Humble Oil & Ref. Co.'s C. C. Slaughter 1, sec 8, blk 35, dr 1395 ft.

MIDLAND COUNTY—Rook-Zimmerman et al's M. E. Hill 1, sec 8, TP Ry sur, blk 37, spudded.

PECOS COUNTY—Dixie Oil Co.'s Sheribino 1, lcn in sec 51, G. C. & S. F. sur, blk C-4. Tom Adams Oil Co.'s Devlin 1, 17 miles NW of Fort Stockton, sd with show oil 1005 ft. Gulf Prod. Co.'s White-Baker 1, sec 85, blk 194, set 6⅝ cas 3275 ft.

PRESIDIO COUNTY—John Sward et al's Tootle 1, sd 900 ft.

REAGAN COUNTY — Big Lake Oil Co.'s University 17, dd, fighting gas 2794 ft; University 20, fsh 2500 ft; University 28, testing oil pay 2083-85 ft; University 30, rig; University 31, dr 625 ft; University 32, dr 1600 ft; University 33, dr 1050 ft; University 34, dr 1900 ft; University 35, dr 2485 ft; University 36, sd repairs 2480 ft; University 37, fsh 2440 ft; University 38, dr 2650 ft; University 39, dr 2510 ft; University 40, dr 1100 ft; University 41, fsh 1915 ft; University 42, dr 2431 ft. The California Co.'s University 1, sec 13, blk 8, collapsed cas 4082 ft. H. D. Camp et al's University 1, sec 34, blk 11, sd 200 ft. Gulf Prod. Co.'s University 2, sec 1, blk 1, spudding B. H. Cogdell et al's University 1, sec 23, blk 8, dr 2735 ft. W. H. Dunning et al's J. D. Sugg 1, sec 185, TP sur blk 2, sd 785 ft. Ben Simon et al's University 1, blk 11, rig. L. V. Tannehill et al's University 1, sec 15, blk 11, lcn. Texon Oil & Land Co.'s University 12, co 2490 ft; University 14, dr 2585 ft; University 15, fsh 2510 ft; University 16, fsh 2550 ft; University 17, set 5 3/16 cas 2835 ft; University 18, dr 2630 ft; University 19, dr 2525 ft; University 20, dr 1140 ft; University 21, dr 1840 ft; University 22 to 29, inclusive, rigs; University 4, Group 2, rig. University Oil Co.'s University 1, sec 17, blk 10, sd 2860 ft.

SCURRY COUNTY—Camp Springs Oil & Ref. Co.'s J. O. Guinn 1, fsh cas 3865 ft. The California Co.'s C. E. Wood 1, dr 100 ft. Northwest Co's Newman 1, dr 510 ft. Morrison-Thompson's Mary E. Towle 1, rig. J. A. Hood's (was Hermleigh Oil & Gas Co.) J. W. Burris 1, sr from 2250 ft, td 3000 ft.

STONEWALL COUNTY—Elder Nance et al's Ward Estate 1, reaming 2120 ft; J. M. Thomas 1, dr 650 ft

STERLING COUNTY — Chicago-Texas Oil & Gas Co.'s W. L. Foster 1, (was Ford & Codgell) fsh bit 1975 ft; D. C. Durham 1, sd 2250 ft; Durham 2, sd 1410 ft. Co-Operative Lease & Dev. Co's Douthitt 1, sd 2280 ft. George Northrup & Hall's I. L. Ellwood 1, dr 2405 ft Pettit & Adkisson's C. C. Reynolds 1, dr 2935 ft. Kanawah-Angelo Oil Co.'s L. T. Clark 1, dr 2410 ft. Harty et al's Reynolds 1, spd and sd. C. W. Wrightsman et al's W. L. Foster 1, rig; G. R. Hull 1, (was Fidelity) co 1865 ft. White Eagle Oil & Ref. Co.'s H. M Mills 1, sec 33, blk 22, H&TC sur, spudding.

SUTTON COUNTY—J. W. Sorrelle et al's Clarkson-Ellison-McKnight 1, lcn in sec 15, blk A-9, Georgetown RR. sur.

UPTON COUNTY — Big Mesa Oil Co.'s University 1, sec 17, blk 3, ur 12½ cas 700 ft. W. P. Morris et al's H. M. Halff 1, sd 655 ft. Suggs & Chancellor's University 1, sec 6, blk 4, spd and sd.

San Antonio District Wildcats

COMPLETIONS

Company, Well. Location—	Initial Production Bbls.	Depth
Webb County—		
Rydal Oil Co.'s Puig 11	65	....
No. 12	60	....
Crown Central Oil Co.'s Garcia 16.	100	....
No. 17	200	....
No. 18	120	....

DRILLING REPORT

BEXAR COUNTY — Humble Oil & Ref. Co.'s N. C. Cassin 1, dr 1060 ft; Menchaca 1, dk. Grayburg Oil Co.'s Palfrey 1, dr. Humble Oil Co.'s Minona Coreth 1, dr below 1050 ft.

BASTROP COUNTY — Cardinal Oil Co.'s No. 1, dr. C. V. Patton's Glover 1, dr. Quaker Oil Co.'s Howard Smith 1, dr. Jake Jarmon's Watkins 1, sd for water. Commodore Oil Co.'s Zandy Hart 1, dr 1500 ft.

DUVAL COUNTY — Co-Operative Drilling Co.'s Dinn 1, sd 2070 ft. Associated Oil Co.'s Sutherland 1, dr. Mesquite Oil Co.'s No. 1, setting liner. Booth Interests' W. R. Peters ranch, lcn. O. W. Killam's Benavides 3, sd 2650 ft; 4, dr 1621 ft. Humble Oil Co.'s Pusch 1, r to set 6-inch at 2340 ft. United States Gas & Oil Co.'s Peters ranch 3, dr.

GUADALUPE COUNTY — L. K. Hughes Dev. Co.'s Allen 20, no report. Allen Burman's Bailey 1, dr 2000 ft, strong odor of oil. Magnolia Oil Co.'s Nos. 13 and 14, dr. Jennings et al's Vogel 1, preparing to set 10-inch cas. Weinert et al's Nolte farm 1, lcn. Stebbins Oil & Gasoline Co.'s Lenz 1, dk. Southerwestern Extension Synd.'s Willmann 1, rigging up. M. O. Rayor's Jessie O. Lipscomb 1, dr. McClannahan's Herman Lenz 1, dr 2000 ft. Roxana Pet. Co.'s Herman Schmidt 1, dk. Joe Dunning et al's Hugo Vetter 1, dr. J. M. Davis et al's Koch 1, sd for water; Augusta Hoese 1, dr 1750 ft. York Creek Oil Co.'s Fulshear 1, to dr deeper.

JIM HOGG COUNTY — Buchanan-Plateau Oil Co.'s No. 4, set cas. Rydal-Rycade Oil Co.'s W. P. Allen 1, sur 21, dr below 2900 ft. Simms Oil Co.'s Wood 1, sur 84, dr. J. W. Pippin et al's Palacious 2, setting 5 3/16-inch cas. Kirkpatrick-Lucas' No. 1, cas set; preparatory to testing. Plateau Oil Co.'s Martinez 5, sd 2066 ft. Daniels & English's No. 1, blk 8, sur 1617, dr 500 ft. Texas Co.'s Jennings 1, cas set at 902 ft, to test. Big Bend Oil Co.'s Martinez 5, cemented 6⅝-inch cas to 2030 ft; Martinez 6, dr below 1050 ft. Buchanan et al's No. 4, dr below 1800 ft. Grayburg Oil Co.'s Weil 1, dk. Kitselman & St. Albans' No. 18, setting up. Morgan et al's No. 1, sur 336, dk. Russell-Hoffman's David Vela 1, dk; Givens 1, rigging up. Killam-Lang's Vela 2, setting up. Mirando Oil Co.'s No. 11, set cas at 2048 ft. San-Tex Oil Co.'s No. 1, sur 262, dr below 1200 ft. Texo Oil Co.'s Lopez 4, dr 1978 ft. Weber Oil Co.'s Holbein 4, dr 3598 ft. Plateau-Texas-Pacific's Nos. 2, dr; 6, set cas at 2002 ft. Plateau-Wheat's Nos. 3, dk; 4 and 5, lcns. O. W. Killam's Nos. 9 and 10, dr. Elliott-Texas-Pacific's No. 2, dr.

ZAPATA COUNTY — H. J. McMullen's Serapio Vela 1, 2 and 3, lcns. R. K. Bateman et al's No. 1, sur 617, dr. Texas Co.'s Cuellar 1, lcn; Jennings 1, dr 910 ft. Chandlier-Gier's No. 1, sur 2, dr 2000 ft.

Oklahoma Wildcats

ALFALFA COUNTY—McGinnis & Ward's Watts 1, C SE NE SW 21-27-10w, sd 3504 ft.

ATOKA COUNTY—Henson et al's Dabney 1, C SE NW 17-4-11w, fsh 3490 ft. Wapanucka Dev. Co.'s Underwood 1, C W L SE SE 28-15-10w, sd 1343 ft.

BLAINE COUNTY—Mayers et al's Chronister 1, SEc NW NW 7-18-15w, sd 965 ft. Okomo Oil Co.'s Ekleman 1, SEc 21-15-10w, sd 2610 ft.

BRYAN COUNTY — Alexander's Hampton 1, SEc NE 26-7-11, sd 1400 ft.

CANADIAN COUNTY — Thos. Revelle's Dawson 1, C SE SE NW 20-26-9w, sd 3065 ft. Carrol et al's Setter 1, SEc 2-13-8w, sd 100 ft. C. D. Jones et al's Sanders 1, C NE NE NE 29-11-7w, dr 2000 ft.

CLEVELAND COUNTY — Garr Oil Co.'s Holland 1, NEc SE 31-10-4, sd 2620 ft.

GRANT COUNTY—Embry et al's Edwards 1, C SE SE NW 20-26-4, sd 1000 ft. Midwest & Gulf's Moon 1, NEc NW 8-27-8w, sd 2490 ft. Frank Travers et al's Fuss 1, SWc NW NW 3-27-4w, sd 1250 ft.

HUGHES COUNTY — Mathers & Skelly's McClain 1, C SW SW 4-5-11, sd 3026 ft. Walton, Snyder & Marshall's King 1, C E L NE NW 6-6-10, fsh 3675 ft. Atkins et al's Sewell 1, C SE SW SW 14-7-9, dr 1910 ft. Parmenter et al's Stewart 1, C SW SE 11-5-8, rig. Henry Greis & Kerr's Pearson 1, C SE NE NE 30-5-10, lcn.

JEFFERSON COUNTY—Barker et al's Major 1, C SE SW 34-5-6w, spd and sd. Godley Oil Co.'s Woodworth 1, C NE NW 36-5-4w, sd 1765 ft. Pauline O. & R. Co.'s Graver 1, C NE SW 17-5-8w, sd 2225 ft. Pure Oil Co.'s Howard 1, SWc NE 25-4-11w, dr 812 ft.

KAY COUNTY — Hickman & Barnhard's Sheets 1, C NW SW SE 25-22-2w, sd 997 ft.

KIOWA COUNTY—Connor et al's No. 2, NEc NW NW 34-7-16w, sd 2590 ft. Alcorn Oil Co.'s No. 1, NEc SE SE SW 13-7-16w, dr 2590 ft. C. E. Reynolds' Smart 1, C E½ SE 12-6-17w, rig.

LINCOLN COUNTY—P. & R. Corp.'s Hanzig 1, NWc SW 14-13-6, dr 2945 ft. Douglas Oil Co.'s Ewing 1, NEc 7-13-3, dr 2700 ft. Eugene Coste & Co.'s Ross-Fortune 1, SEc NW 26-12-2, dr 4075 ft. Wilcox O. & G. Co.'s Smith 1, SEc NW NE 12-12-3, sd 4505 ft. F. O. Howarth's Harris 1, SEc NE 22-15-2, dr 4420 ft. Santrock Drilling Co.'s No. 1, SEc NW 17-15-3, sd 920 ft. Ruby et al's Cull 1, NEc NW 36-15-4, r 3705 ft.

LOGAN COUNTY—Skelly Oil Co.'s Newman 1, NWc NW 32-19-3w, sd 3007 ft, hfw. Franklin Oil Assn.'s Moore 1, NWc SE SE 35-18-4w, fsh 2520 ft. Haley & Pioneer Pet. Quair 1, SWc SE 33-19-3w, sd 270 ft. Blackford O. & G. Co.'s Lair 1, C S L N½ SE 28-16-16-1w, dr 1420 ft. Magnolia Pet. Co.'s Prichard 1, NWc 23-15-1e, dr 4080 ft.

LOVE COUNTY — Drillers Syndicate Oil Co.'s Wilson 1, NWc SE 11-7-2, sd 2830 ft. Magnolia Pet. Co.'s Crowe 1, C NE NE SE 13-8-2, cementing 2552 ft. Smyer & Stein's Gray, C SE SE 12-9-1, rig. Jackson & Askew's Havenkamp 1, C SW SW NW 27-7-2, dr 2100 ft.

MAJOR COUNTY — Texas Prod. Oil Co.'s Basin 1, SWc 6-22-14w, sd 200 ft. Frantz & Slick's Gray 1, C NW 36-21-11w, sd 1000 ft.

PONTOTOC COUNTY—Highland Oil Co.'s Hatcher 1, C NW SW 4-4-5, sd 2285 ft. Dixie Oil Co.'s Moran 1, SW SW NE 33-3-4, dr 710 ft.

POTTAWATOMIE COUNTY — Ossie Oil Co.'s Howell 1, SWc NE 17-10-2, sd 3363 ft. The Texas Co.'s Allenbaugh 1, SEc SW 3-11-6, fsh 1100 ft. Davie Detrick's McGathey 1, SEc 10-6-2, sd 3850 tf. H. C. Gwinnup's Floyd 1, SW SE 12-11-3, sd 3655 ft. Pierce Oil Corp.'s Magett 1, NWc 25-10-4, sd 460 ft. McMann Oil Co.'s Heghan 1, SWc NW 19-7-4, sd 100 ft. Halmond Osmond et al's Fiddler 1, SEc NW 4-5-5, sd 545 ft. Central National Oil Co.'s Toney 1, C SW SW SW 28-10-4, cementing 755 ft.

ROGER MILLS COUNTY — Twin Hills Oil Co.'s McClure 1, NWc 15-16-26w, sd 4310 ft. Trio Oil Co.'s No. 1, SEc NW SW 3-13-26w, sd 3200 ft.

SEMINOLE COUNTY—Maxwell & Carty's Christie 1, C NE NW 33-6-6, sd 3000 ft. Link Oil Co.'s Caroline 1, C SE NW 14-6-7, sd 2840 ft. R. F. Garland's Farlin 1, C NE NW 6-6-8, sd 1390 ft. Central National Oil Co.'s Harjo 1, C NE SW NE 14-11-7, sd 3750 ft. Transcontinental Oil Co.'s Davis 1, NE SE 22-7-7, co 3160 ft. Bryan Bros. Walker 1, C SE SE SE 4-7-6, dr 1558 ft. Riverside & Kinney's Nitley 1, C S½ NE SE 24-5-5, rig.

WOODS COUNTY—Victor Oil Co.'s Van Buskirk 1, SWc SE 10-25-15w, sd 960 ft.

WASHITA COUNTY—Meridian Pet. Co.'s No. 1, SE SE SE 14-9-15w, lcn.

Kansas Wildcats

BARBER COUNTY—R. B. Brown's No. 1, NWc 14-34-11w, fsh 2240 ft.

BARTON COUNTY — Cheyenne Oil Co.'s Sooy 1, SWc SW 27-18-12w, sd 3525 ft. Haynes et al's Taul 1, NWc 21-12-12w, sd 2100 ft. John Herron's No. 1, SEc NE 22-18-13w, dr 4170 ft. Huffine et al's Smith 1, C NE SW 21-19-12w, dr 1700 ft.

CLARK COUNTY—Watchorn O. & G. Co.'s Morrison 1, SEc NE NE 20-32-21w, 3 million ft gas 5308 ft.

CLOUD COUNTY — Livingston's Murdock 1, SEc 6-6-4w, dr 1770 ft.

GEARY COUNTY — Liberty-Texas' Wright 1, NEc 9-12-6, sd 750 ft. Liberty-Texas Oil Co.'s Foster 1, NEc SW 3-12-6, sd 2000 ft.

GRAHAM COUNTY—Keyes Bros. & Marine's Thaxton 1, SEc NW 23-8-24w, r 2000 ft. Gruen & Shiler's Baker 1, NWc SE NW 17-10-24w, rig.

JEFFERSON COUNTY — Northern Counties' Edwards 1, SEc NW NW 13-8-9, sd 3405 ft.

KINGMAN COUNTY—Hale et al's Graber 1, SWc NW 34-27-7w, dr 3500 ft.

LABETTE COUNTY—Ark. Fuel Oil Co.'s Sparks 1, NEc SE SE 14-31-17, sd 1110 ft.

LINCOLN COUNTY—Equite Oil Co.'s Jellison, NWc SE 19-13-9w, dr 3250 ft. Scott & Collins' Stone 1, SEc SW NE 19-11-6w, sd 500 ft.

MARION COUNTY — Leonard Pet. Co.'s Whaler 1, SEc NE NW 23-19-4, r 2362 ft.

MITCHELL COUNTY—Wilcox Oil & Gas Co.'s Elders 1, NWc SW NW 23-6-9w, dr 3470 ft.

NEMAHA COUNTY — Nemaha O. & G. Co.'s Meyers 1, NW C 19-3-11, sd 3250 ft.

OSAGE COUNTY—Rodgers & Bittle's Bertha 1, SEc NW 22-17-16, lcn. Mul-Vit Dev. Co.'s Neil 1, NEc NW SW NE 8-17-17, sd 2735 ft. Baker et al's No. 1, C SE SE 3-15-15, sd 260 ft.

RICE COUNTY—Stamey's Barnes 1, SEc NE 21-20-6w, sd 3640 ft. Jasper & Beschka's Walker 1, SWc NE 10-18-6w, co 2200 ft.

RILEY COUNTY—Pawnee O. & G. Co.'s Marks 1, SEc NE NW 26-10-6, sd 2030 ft.

ROOKS COUNTY—Keyes Pet. Co.'s Sandon 1, NWc SW SE 7-8-20w, spd and sd. C. Findeiss et al's Minx 1, SWc 25-10-19w, sd 2485 ft.

SALINE COUNTY—Thrall et al's No. 1, SEc NE NW 15-15-4w, sd 1010 ft.

SEDGWICK COUNTY — J. H. Liggett's Funk 1, NEc NW 11-26-1, fsh 3200 ft. L. E. Craig et al's Mean 1, NWc NW 26-28-1w, dr 3750 ft. Curtis et al's Duncan 1, SEc NW NW 19-29-1w, rig. Allison & Fitzwilliams' Webb 1, C NE 21-29-3w, spd and sd.

SEWARD COUNTY — C. T. Dev. Co.'s Woods 1, NWc NE 34-34-34w, sd 700 ft. Seward O. & G. Co.'s Selsey 1, NEc NW 2-33-33, sd 2785 ft.

SUMNER COUNTY — The Texas Co.'s Nixon 1, SWc SE SE 12-35-1, sd 2180 ft. Foster et al's French 1, NWc 13-31-2, lcn. Phillips Pet. Co.'s Armspiger 1, NWc 17-34-1, dr 3500 ft. Wilcox O. & G. Co.'s Stayton 1, NWc SW 5-32-2w, dr 3650 ft.

TREGO COUNTY—Keyes Pet. Co.'s Davis 1, NEc SW 16-11-25w, dr 3315 ft. Keyes Pet. Co.'s Walsh 1, NWc SE 5-11-25w, sd 1450 ft. Walsh 2, SWc SE SW 5-11-25w, sd 1550 ft.

WABAUNSEE COUNTY—Williams et al's No. 1, NEc SW 15-13-12, sd 3600 ft.

WILSON COUNTY — Rhodes & French's Brown 1, NWc SW NW 2-27-14, dr 980 ft.

WOODSON COUNTY—Dave Alter et al's Hunt 1, NWc SW 13-25-14, dr 700 ft. Harris et al's Greese 1, NWc SE 35-25-12, lcn.

Louisiana Wildcats

BIENVILLE PARISH—Evans & Brown's Miles 1, 20-18-7, set 8¼-inch 2000 ft.

BOSSIER PARISH—Best Oil Co.'s Finouef 1, 8-18-12, dr 200 ft. Corbett et al's Murff 1, 18-17-11, dk. Kendrick et al's Webster 1, 9-18-11, dk. Osborne et al's McDade 2, 32-19-11, sd 872 ft. Wilder & Cushman's Lewiston 1, 13-16-12, dr 940 ft.

CADDO PARISH—Dixie Oil Co.'s Dillion 53, 13-21-15, setting 4½-inch 3689 ft; Jolly 1, 27-22-15, dr 3110 ft. Flournoy et al's Simpson 1, 8-16-15, dr 2425 ft. Fortuna Oil Co.'s C. L. B. 2, 8-20-15, repairing connections. 2946 ft; Mitchell 1, 17-18-16, dr 2970 ft. Henderson et al's Caldwell 1, 29-22-15, sd 50 ft. Ridge Oil Corp.'s Williams 1, 3-15-15, dk. R. O. Roy & Co.'s Hutchinson 1, 34-16-12, dr 1025 ft. The Texas Co.'s Jeems Bayou 1, 15-20-16, sd 3506 ft. Woodley & Collins' McVea 1, 23-19-14, sd 2580 ft.

CLAIBORNE PARISH — Clark & Melat's Heard 1, 5-21-6, dr 2170 ft. Collins & Woodley's McDonald 1, 26-21-5, dr 2135 ft. Evans & McMurphy's Taylor 2, 5-19-5, dk. Triangle Drilling Co.'s Cox 1, 7-19-5, sd 2735 ft; Brown 1, 1-19-6, rig.

DE SOTO PARISH — Fortuna Oil Co.'s Alexander 1, 32-12-15, dr 2700 ft; Bishop-Robinson 1, 22-11-12, wosr 2992 ft. Gulf Ref. Co.'s Williams C-18, 31-13-11, coring 2345 ft. Tarver et al's Meadows 1, 2-14-10, rig. Ulrey et al's Scott 1, 21-11-12, dr 1675 ft.

GRANT PARISH—Finn Construction Co.'s Ball 3, 14-7-1w, dr 1925 ft.

JACKSON PARISH — Big Chief Oil Co.'s Rymes 1, 13-14-4w, fsh 2150 ft.

LA SALLE PARISH — Alexandria-Urania Oil Co.'s State 1, 26-10-1e, dk timbers. Davis et al's Russell 1, 24-10-1e, dk. Ford et al's Tullos 1, 23-10-1e, sw 1519 ft. Gould & Monroe Drilling Co.'s Harper 1, 23-10-1e, sw 1496 ft. Heard et al's Boyd 1, 28-11-2e, dk. Helm & Burch's Urania 1, 28-11-2e, r 1392 ft. Imperial O. & G. Urania 1, 10-10-1e, coring 1527 ft. Jones & Haywood's Kees 1, 7-10-3e, dk. Love et al's Tremont Lumber 1, 30-10-2e, testing 1490 ft. Mitchell et al's Rich 1, 25-8-4, dk. Bill Rowe's Hardtner 1, 19-10-2e, testing 967 ft. Urania Pet. Co.'s Urania 7, 19-10-2e, testing 1512 ft. Wright et al's Love 1, 16-11-2e, dr 50 ft.

LINCOLN PARISH—Ruston Drilling Co.'s Richardson 1, 7-18-2w, sd 1100 ft.

OUACHITA PARISH — Dickson & Frue's Goodwin 1, 24-18-2e, sw 2860 ft. Palmer Corp.'s (White) Jones 1, 6-16-5e, dr 6-inch plug 2422 ft.

SABINE PARISH—Emlet et al's Bowman-Hicks 4, 8-7-1w, skidding over; Bowman-Hicks 5, 9-8-12, abn 2633 ft. Toro Pet. Co.'s Wyatt 1, 18-4-11, dr 700 ft.

UNION PARISH—Simms Oil Co.'s Hammock 1, 22-122-3w, dr 200 ft.

WEBSTER PARISH — Fortuna Oil Co.'s Bible 1, 8-20-9, fsh 2180 ft. Palmer Corp.'s Davis 1, Cotton Valley deep test, 23-21-10, set 6⅝-inch 3305 ft.

WINN PARISH—Hall et al's Nagle 1, 6-10-2w, sd 390 ft. Ohio Oil Co.'s Rowland 1, 5-12-1w, dr 675 ft.

Arkansas Wildcats

BRADLEY COUNTY—The Texas Co.'s Saline Lumber 1, 11-17-10, dr 650 ft.

CALHOUN COUNTY — Klotz & Thomas' Forest City Box 1, 14-16-14, testing 2575 ft. Murdock et al's Eagle Mills 1, 29-12-15, sd for water 1717 ft.

COLUMBIA COUNTY—Arkansas Fuel Oil Co.'s Longino-Goode 1, 14-18-20, dr 2100 ft. Greeson et al's Pearce 1, 3-18-10, dr 1040 ft. Gulf Ref. Co.'s Hines 1, 17-17-18, dr 700 ft. Meier et al's Gantt 1, 15-17-22, dk. Phillips et al's Davis 1, 14-18-21, dr 6-inch plug 2702 ft. Pluto Oil Co.'s Dickens 1, 20-18-22, dk; Robinson 2, 23-18-23, coring 710 ft. Wingfield & Mitchell's Bodcau Lumber 1, 4-20-21, sd 2024 ft.

DREW COUNTY—Graves et al's Karnes 1, 10-13-6, dr 2700 ft. McClintock et al's Ogle 1, 35-13-5, set 10-inch 200 ft. Spooner et al's Meyer 1, 4-16-17, sd 50 ft.

HEMPSTEAD COUNTY—Grassy Lake Oil Assn.'s Gun Club 1, 27-12-27, sd 2100 ft. Tarver et al's Swafford 1, 14-11-25, dr 50 ft. Zingg et al's Sutton 1, 9-11-23, dr 730 ft. Wooten et al's Clarke 1, 22-11-24, sd 2040 ft.

LA FAYETTE COUNTY—Estes & Oliver's Bodcau 1, 13-18-24, dr 1830 ft. Ken-Saw Pet. Co.'s Red River Valley 2, 3-20-24, dr 2450 ft. Humble O. & R. Co.'s Bodcau Lumber 5, 16-15-22, dr 50 ft; Johnson 1, 23-16-25, rig; Shortliff 1, 3-16-23, rig.

LITTLE RIVER COUNTY — Grote et al's Allen 1, 2-13-29, ur 7-inch 2850 ft. Johnson et al's Hawkins 1, 10-11-31, sd 1350 ft.

MILLER COUNTY—Copeland et al's Wiseman 1, 36-15-27, sd 1000 ft. Davidson et al's Faulk 1, 27-17-27, dr 100 ft. Gillespie et al's Fee 1, 2-15-26, to resume dr 150 ft. Humble O. & R. Co.'s Goodsin 1, 30-16-27, dr 400 ft.

NEVADA COUNTY — Dudney-Thompson Synd.'s May 1, 23-14-22, dk. Falcon Drlg. Co.'s Weaver 1, 6-13-21, rig. Greeson et al's Ellis 1, 2-15-21, rig. Steele et al's Fincher 1, 9-15-22, rig. White et al's Hamilton 1, 34-14-22, sd 1040 ft.

OUACHITA COUNTY—Buffalo Oil Co.'s Morgan 1, 22-15-19, testing oil 2225 ft. Jones et al's Wilson 1, 26-15-18, testing 2313 ft. Lown et al's Burton 1, 30-15-17, dr 2400 ft.

PIKE COUNTY—Strawn et al's Banks 1, 11-8-25, coring 221 ft.

UNION COUNTY—Liberty Oil Co.'s Davis 1, 31-16-14, r 2800 ft. Magnolia Pet. Co.'s Chandler 1, 4-19-14, dr 2700 ft. Ohio Oil Co.'s Arkansas Timber 1, 21-18-10, rig. Ward et al's Goodwin 1, 16-16-14, sdtr 2580 ft.

PERMITS GRANTED FOR NEW WELLS

Weekly Comparison of New Wells

Following is a condensed table giving a comparison of permits or locations made for new wells in Kansas, Oklahoma, Arkansas, Louisiana, Texas and California:

	Number of Wells for Week Ending															
	Mar. 20	Mar. 27	April 3	April 10	April 17	April 24	May 1	May 8	May 15	May 22	May 29	June 5	June 12	June 19	June 26	July 3
Kansas .	36	55	34	23	37	38	26	32	32	27	29	44	40	19	29	50
Oklahoma	94	73	115	107	96	82	81	86	94	95	114	106	93	104	115	80
Arkansas	55	80	54	55	34	64	60	49	31	77	62	67	40	64	41	*4
Louisiana	14	14	4	9	14	20	7	10	7	12	8	16	18	8	8	11
Texas . .	218	198	187	214	213	215	147	144	208	130	167	221	198	204	206	168
California	24	36	42	26	28	40	27	26	34	29	33	24	33	37	30	49
Total .	441	456	436	434	422	459	348	347	406	370	413	478	422	436	429	362

*Smackover permits not available for past week; will be included in next issue.

KANSAS

Butler County—Penn-Kansas Oil Co.'s No. 9 Ralston, C NE SE 10-26-4. Neely Oil & Gas Co.'s No. 1 Blankenship, SEc NW 23-26-7. Tidal Oil Co.'s No. 1 Drum, NEc 20-26-8. Safford et al's No. 6 Safford, NW SE NW SW 26-27-4. Balliere et al's No. 1 King, SWc 15-27-7.

Chase County—H. D. Horne et al's No. 1 Kirk, C NE NE 19-21-8.

Cowley County—White Eagle O. & R. Co.'s No. 2 Feust, SEc 30-30-6. Lewis Oil Co.'s No. 6 Robbins, SWc SE NW 31-30-6. R. B. Hessler's No. 1 Simmons, NEc 33-30-7. J. A. Hull et al's No. 2 Rockwell, section 23-32-4. Marland & Slick's No. 2 Heskett, SEc NW NW 19-33-3. Phillips Pet. Co.'s No. 1 Wright, NWc SE 28-33-3; No. 1 Shaffer, C S L of lot 7, 6-33-8.

Elk County—C. E. Roth & Co.'s No. 11 Porter, SEc SE SW 12-29-10. Pure Oil Co.'s No. 3 Webb, NWc SW 13-31-10; No. 3 Chaffine, NWc SE 14-31-10; No. 4 Chaffine, NWc SE 14-31-10. Southwestern Gas Co.'s No. 6 Webb, SEc NE 14-31-10; No. 7 Webb, SWc NE 14-31-10. R. G. Gillespie's No. 1 Curtis, SEc SW SW 12-31-11.

Greenwood County—Pryor & Lockhart's No. 5 Derbyshire, NEc SE SE 13-22-10. Davis Alyard's No. 5 De Malorie, NEc SW SW 7-22-11. Tidal Oil Co.'s No. 4 Kipfer, SEc NE NE 11-22-11. Empire G. & F. Co.'s No. 1 Voorhees, SEc NE 12-22-11. White Eagle O. & R. Co.'s No. 5 McGilroy, SWc NW NW 12-22-11. White Eagle O. & R. Co.'s No. 7 McGilroy, NWc NE NW 12-22-11. T. K. Simmons et al's No. 1 Greenwood, SEc NE NE 28-22-11. York State Oil Co.'s No. 6 Westcott, SWc SE NW 33-22-11. Empire G. & F. Co.'s No. 2 Scott, SWc SE SE 24-23-8. Skelly Oil Co.'s No. 8 Teeter, SEc NE SW 15-23-9. Empire G. & F. Co.'s No. 28 Teeter, NE SW NE 16-23-9. Phillips Pet. Co.'s No. 1 Morris, SWc NW SW 19-23-9; No. 1 Margaret, NEc SW 20-23-9; No. 1 Ross, NWc SE 8-23-11; No. 1 Oliver, NEc SE 8-23-11. Pulaski Oil Co.'s No. 5 Holland, SEc NE 8-23-11. Fisher Lauch & Moore's No. 7 Seely, SWc SE SE 5-23-11. Palhamus & Arkansas Fuel Oil Co.'s No. 2 Johnson, NEc 21-24-12. Magnolia Pet. Co.'s No. 1 Prather, NWc 22-26-9.

Lyon County—Phillips Pet. Co.'s No. 1 Wilkets, SWc NE NE 33-21-12.

Rice County—Sparta Drlg. Co.'s No. 1 Hollschen, SEc 2-19-10.

Russell County—Muddy Oil Co.'s No. 2 Kollman, SWc NW 5-12-15w. Derby Oil Co.'s No. 6 Sutton, NWc NE SW 5-12-15w; No. 7 Sutton, NEc NW SW 5-12-15w; No. 1 Brunsitt, SWc SE NE 5-12-15w. Streeter & Stearn's No. 1 Sutton, NEc SW SE 5-12-15w.

Sumner County — McKenna et al's No. 1 Waggoner, SEc NW 12-30-1. Sparta Drilling Co.'s No. 1 Stuart, SEc SW SW 35-21-4w.

Woodson County—F. V. Fields et al's No. 1 O'Neil, NE SE 9-25-14. Curtiss et al's No. 1 Rhea, NWc NE SW 22-25-14. Curtiss et al's No. 1 Fuhlhoge, SWc NW SW 22-25-14.

OKLAHOMA

Kay County—Comar Oil Co.'s No. 1 Orr, C S L NE SW SW 5-28-1w. T. B. Slick's No. 1

Vickers, SEc NE NE 7-28-1w. Comar Oil Co.'s No. 3 Horne, C NW S NW 8-28-1w. Wire & Ketcherid's No. 1 Townsite, block 19, lot 22, 8-28-1w. Fitzgerald Construction Co.'s No. 1 Townsite, lot 10, block 11, 8-28-1w. Bird, Vergess et al's No. 1 townsite, block 19, lot 11, 8-28-1w. Jackson et al's No. 1 townsite, block 18, lot 24, 8-28-1w. Joe Cain's No. 1 townsite, block 23, lot 3, 8-28-1w. Cosden & Co.'s No. 1 Schooland, C SW SW SE 36-27-2w. Miller & McClure's No. 1 Ault, C NW NW SE 35-27-1w. Pennock Oil Co.'s No. 1 School land, C NE NE NW 33-25-2w.

Grant County—Wilson & Gloyd's No. 1 Bohan, C SW SW SE 26-27-4w. Blackwell O. & G. Co.'s No. 2 Couch, C NW NE NW 23-27-3w.

Noble County—Mid-Co Pet. Co.'s No. 4 Snyder, C NW NW SW 15-23-2w. R. L. Corley's No. 1 Williams, C SE NE SW 7-21-1w.

Pawnee County—R. E. Freeman Oil Co.'s No. 2 Diehmel, SEc NE NW 17-21-7. Wasson & West's No. 1, SEc NW SW 19-21-8.

Garfield County—Sinclair O. & G. Co.'s No. 22 Walker, SE NW SE NE 13-22-4w. Sinclair O. & G. Co.'s No. 18 Hartley, SWc NE SW NW 18-22-3w.

Payne County—Deep Rock Oil & Ref. Co.'s No. 2 Goodno, SWc NE 23-18-3; No. 3 Goodno, C SW SE NE 23-18-3; No. 2 Derry, NEc NW SE 23-18-3; No. 1 Shannon, NEc SW 23-18-3. Mulberry O. & G. Co.'s No. 1 Haley, C NW NE SE 23-18-3. Pure Oil Co.'s No. 1 Ostrander, SEc NW 23-18-3. Shaffer Oil & Ref. Co.'s No. 3 Sharrum, SEc SW NW 5-17-4.

Stephens County—Smith-Law's No. 7 Morgan, SWc NE SE 31-1n-8w, owd. Magnolia Pet. Co.'s No. 1 Fleming, SEc NE NW 26-1n-9w; No. 4 Dora Johnson, NEc NW SE 25-1s-9w. Gaut et al's No. 1 School land C N L NE NW 36-1s-9w. Magnolia Pet. Co.'s No. 10 Bartley, NEc SW NW 20-1s-8w. Western Arch Oil Co.'s No. 1 McDonald, NEc SE SE 13-2s-8w.

Carter County — Franklin-Carter's No. 3 Brooks, C SW NW NW 30-2s-2w. Westheimer's No. 5 Fee, NEc NW NW 28-5s-1e. Amerada Pet. Corp.'s No. 14 Clay, SEc NW SE NE 28-5s-1e.

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Okfuskee County—Windsor Oil Co.'s No. 6 Guy, NEc NW SW 22-11-11; No. 5 Guy, SE NW SW 22-11-11.

Seminole County—Holmes & Jarvis' No. 1 Fixico, C NW SW SE 15-11-9.

Hughes County — Gypsy-Foster Investment Co.'s No. 2 Bowlegs, C NE SE SE 22-9-9. Tidal Osage Oil Co.'s No. 3 Harjo, C NW SE NW 4-9-11. Gypsy Oil Co.'s No. 1 Vorhees, C SW SW NW 32-8-10.

Creek County—Shaffer Oil & Ref. Co.'s No. 22 Fisher, NEc 18-18-7. Olean Pet. Co.'s No. 5 Washington, NEc NW SW 32-17-8. J. H. Wright's No. 6 Dawson, twin, SEc NE SW 24-17-10. White Eagle Oil & Ref. Co.'s No. 1 Jackson, NEc NW NE 8-16-12.

Lincoln County—Pure Oil Co.'s No. 3 Jefferson, SEc SW 35-15-5. Magnolia Pet. Co.'s No. 3 Sproleder, SEc 34-15-5. Carter Oil Co.'s No. 2 Earp, NEc SE SE 6-15-6. Mid-Continent Pet. Co.'s No. 2 Earp, SWc NW NW 8-15-6. Carter Oil Co's No. 1 Tuttle, NWc NE 2-14-5. The Texas Co.'s No. 3 Tipton, SWc 2-14-5.

Tulsa County—Riverland Oil Co.'s No. 5 Inchoe, C NE NE 24-19-11. McMahan et al's No. 1 Johnson, SEc SW SE 35-18-13. Wade et al's No. 3 Gaines, NEc NW SE NE 2-17-14. Riverland Oil Co.'s No. 1 Murry, SWc NW NE 36-17-12.

Okmulgee County—Sheridan Oil Co.'s No. 1 Thomas, SWc NE 30-16-11. Shaffer Oil & Refining Co.'s No. 1 Thompson, SEc NE SE 32-16-11. T. A. Johnson's No. 2 Highead, twin, SWc 10-15-12. Olean Pet. Co's No. 3 Cover, C W L E½ SE 11-15-12; No. 4 Cover, C S L NE SE 11-15-12. Iron Mountain Oil Co.'s No. 9W Thornberry, SEc SW NW 24-13-14. Sterling Oil Co.'s No. 2 Batts, NEc SE NE 30-12-14. D. Beams' No. 1-B Wright, C W L SE SW 22-14-14.

Wagoner County—Young et al's No. 3 Varner, C E L NE NE 17-17-16. Eastern Oklahoma Pet. Co.'s No. 3 Tiger, SEc NE SW NW 21-18-16.

ARKANSAS

Nevada County — Dudney-Thompson Synd.'s May 1, 23-14-22, SEc SW¼ SW¼. Steele et al's Fincher 1, 9-15-22, SWc W½ NW¼ NW¼.

La Fayette County—Humble O. & R. Co.'s Bodcau 5, 16-15-22, center of NW¼; Shortliff 1, 9-16-23, NWc SW¼.

LOUISIANA

Bossier Parish—F. B. Kendrick et al's Webster 1, 9-18n-11w, 200 ft W and 200 ft N of SE Cor. SE¼ of NW¼. Standard Oil Co. of La.'s Bliss & Weatherbee 18, 23-19n-11w, 180 ft S and 165 ft W of NE Cor. NW¼ of SE¼. Geo. W. Wetherbee's Fee F-11, 23-19n-11w, 150 ft N and 150 ft W of SE Cor. SE¼ of NE¼.

Caddo Parish—Austin Oil Co.'s Peak 19, 23-22n-15w, 200 ft W and 200 ft N of SE Cor. SE¼ of NE¼.

Calcasieu Parish—The Union Sulphur Co.'s Faisxt 1, 35-8s-10w, 1100 ft W and 60 ft S of NE Cor. NW¼ of NE¼.

La Salle Parish—Cleve Love's Tremont Lbr. Co. 1, 30-10n-2e, 1020 ft N and 300 ft E of SW Cor. of NW¼.

St. Landry Parish—Bristol Oil & Mineral Co. Inc.'s Breaux 1, 15-8s-3e, 1147 ft W and 1352 ft N of SE Cor. of Sec.

Union Parish—Natural Gas Prod. Co. of La.'s Grayling 3, 32-22n-4e, 1320 ft N and 660 ft E of SW Cor. of Sec.; Union School Board 1, 16-21n-4e, 1050 ft N and 920 ft W of SE Cor. of SW¼. Simms Oil Co.'s Hammock 1, 22-

22n-3w, 297 ft W and 53 ft N of SE Cor. NE¼ of SW¼.

Webster Parish—The Ohio Oil Co.'s B. Sidney Heirs 4, 16-21n-10w, 330 ft N and 330 ft W of SE Cor. NE¼ of SE¼.

CALIFORNIA

Cat Canyon Field—R. & G. Oil Co.'s 11, 30-9-32.

Coalinga Field—Zier Oil Co.'s 2-N, 1-20-14. Pacific Oil Co.'s 68, 25-20-14.

Colusa Co. Field—S. H. Keoughan-Trustee's 1-A, 31-18-4.

Conejo Field—C. A. Harding-Trustee's 13, 34-2-20; 45, 33-2-20.

Huntington Beach Field—Standard Oil Co.'s Huntington 29, 3-6-11.

Inglewood Field—Shell Co.'s Rindge 9, 8-2-14; 10. Petroleum Securities Co.'s Cone 12, 8-2-14; Rubel 13, 8-2-14. Standard Oil Co.'s L. A. Investment 1, 20, 17-2-14; 1, 21, 8-2-14; Vickers 2, 6, 7-2-14. Petroleum Securities Co.'s Rubel 14, 8-2-14; Cone 13, 8-2-14. Pacific Oil Co.'s Baldwin 11, 17-2-14; Baldwin 17, 8-2-14. Standard Oil Co.'s L. A. Investment 1, 22, 8-2-14; 2, 5, 17-2-14. Petroleum Securities Co.'s Cone 8, 8-2-14. Brown Shasta Oil Co.'s 1, 8-2-14; 5, 7-2-14. Standard Oil Co.'s L. A. Investment 1, 18, 8-2-14.

Kern County Field—Standard Oil Co.'s Miller & Lux Option 1, 15-28-22. Matie G. Jones 1, 6-11-22. F. G. Wagner's 1, 34-28-22.

Long Beach Field—J. P. Spalding's Probasco 1, 13-4-13. Center Oil Co.'s 1, 19-4-12. Bush-Voorhis Oil Co.'s 13, 19-4-13.

Los Angeles County Field—Oak Ridge Oil Co.'s Couts Comm. 1, 22-2-12.

Midway Field—Pacific Oil Co.'s 22, 19-31-24; 47, 29-31-24. Southwestern Pet. Co.'s 7, 2-31-22.

Napa County Field—Griffiths Oil Co.'s 6, 7-8-3.

Rosecrans Field—Superior Oil Co.'s Weaver 1, 20-3-13. Julian Pet. Corp.'s Athens 13, 7-3-13. Marine Corp.'s 36, 20-3-13. George F. Getty Inc.'s Athens 8, 7-3-13. C. P. Harrell's 1, 7-3-13. Pacific Pet. Corp. & The United Oil Co.'s Athens 4, 7-3-13. M. G. & N.'s 1, 18-3-13.

San Bernardino County Field—Hesperia Oil & Gas Co.'s 1-A, 29-4-4.

Sunset Field—Lewis Pet. Co.'s G-M 11, 34-12-24.

Temblor Field—T. G. Hutt's How 1, 30-29-21.

Torrance Field—George F. Getty, Inc.'s Torrance 27, 8-4-14. C. C. M. O. Co.'s Del Amo 34, 9-4-14. Shell Co.'s Torrance 4, 9-4-14.

Ventura Field—Associated Oil Co.'s Lloyd 21, 27-3-23.

TEXAS

Archer County—P. F. Gwynn's, City Nat. Bank Bldg., Wichita Falls, Mrs. M. A. Dowlen 1, B 2, H&TC Ry sur, 450 ft to N and 150 ft to E line. Marland Oil Co.'s, Cotton Exchange Bldg., Houston, Mrs. F. Krupka 2, J. Scott sur, 1200 ft to N and 1950 ft to E line. Major Petroleum Co.'s, F. & M. Bank Bldg., Ft. Worth, S. M. Cowan 7, B 50, J. C. S. L. sur, 100 ft E No. 2; 8, same sur, 300 ft S No. 1. Wichtex Oil Co.'s, Waggoner Bldg., Wichita Falls, L. F. Wilson 6, B 29, Amer Trib sur, 350 ft SE No. 6. Oxford Oil Co.'s Keystone Bldg., Houston, J. L. Anderson 1, G. P. Meade sur, 450 ft to W and 150 ft to S line. Mahlstedt Mook Oil Co.'s, First Nat. Bank Bldg., Wichita Falls, D. L. Bishop 1, B 52, L. M. Meade sur, 150 ft to N and E lines. W. C. Young's, 1509 Hayes St., Wichita Falls, Fee 1, Hooper & Wade sur, 150 ft to S and W lines. Texas Co.'s, Wichita Falls, R. E. Hill 5, 2508 TE&L sur, 150 ft to S and 1074 ft to E line. Burns & Maxon's, First Nat. Bank Bldg., Wichita Falls, L. F. Wilson 3, B 75, Amer Trib sur, 150 ft to S and E lines. Bridwell & Heydrick's, Wichita Falls, Oil Inv. Co.'s 2, J. Richards sur, 441 ft E No. 1. R. R. Robertson's, Box 434, Wichita Falls, J. J. Lowe 18, B 2, I. Holman sur, 160 ft to W in center of line. Gulf Production Co.'s, Ft. Worth, H. L. Morrison 1, 2403 TE&L sur, 150 ft to W and 1071 ft to S line. Jno. A. Graves', William & & Mary Hotel, Wichita Falls, O. J. Todd 1, S 11, H&TC Ry sur, 2793 ft to N and 1473 ft to E line. Riner & Bailey's, Wichita Falls, L. F. Wilson 25, B 29, Amer Trib sur, 300 ft N No. 2. Underwood Drilling Co.'s, Morgan Bldg., Wichita Falls, L. F. Wilson 1, Amer Trib sur, 150 ft to S in center of line. Humble Oil & Ref. Co.'s, Wichita Falls, G. B. Hamilton 4, I. Holman sur, 300 ft SE No. 1; J. H. Turbeville 1, S 150, R. Carson sur, 200 ft to W and 1020 ft to S line. McCarty Oil Co.'s, Bob Waggoner Bldg., Wichita Falls, L. F. Wilson 7, E. Fall sur, 300 ft E No. 6. C. M. Root's, Eastland, J. B. Routan 1, B 9, I. Holman sur, 150 ft to N and E lines. Phillips Petroleum Co.'s, Bartlesville, Okla., M. White 76, B 35, Amer Trib sur. Empire Gas & Fuel Co.'s, Staley Bldg., Wichita Falls, J. L. Anderson 2, S 21, S. Anderson sur, 300 ft W No. 1; 3, same sur, 150 ft to N and E lines. Texhoma Oil & Ref. Co.'s, Wichita Falls, A. Bernhardt 1, Wm McCarty sur, 150 ft to N and E lines. Davis-Hart Co.'s, Staley Bldg., Wichita Falls, Roach & Junker 13, 1594 TE&L sur, 300 ft W No. 10; 14, same sur, 300 ft W No. 13. Magnolia Pet. Co.'s, Dallas, V. E. Stampfli 12, 2408 TE&L sur, 300 ft S No. 11; J. F. Rogers 6, 2406 TE&L sur, 300 ft E No. 4. Petroleum Prod. Co.'s, City Nat. Bank Bldg., Wichita Falls, G. A. Lauster 1, S 2, S. P. Ry sur, SE Cor. Woodburn Oil Corp.'s, Dallas, L. F. Wilson 20, B 27, Amer Trib sur, 150 ft to N and W lines.

Bastrop County—C. D. Nelson's, 533 East Park Ave., San Antonio, J. F. Nichols 1, R. Owen sur, north central.

Brown County—H. A. Thomson Jr. et al's, Box 35, Brownwood, G. M. Grooms 1, J. M. Ross 609 sur, 626 ft to W and 175 ft to S line. B. D. Dozier et al's, Cross Cut, W. A. Prater 5, W. B. Travis sur, 475 ft to N and 750 ft to E line.

Brazoria County—A. W. Armetage's, Minneapolis, Minn., W. B. Munson Jr. 1, HT&B Ry sur, 1000 ft to W and 420 ft to S line.

Baylor County—Maer & Staniforth's, City Nat. Bank Bldg., Wichita Falls, W. B. Mills 2, 2428 TE&L sur, 300 ft E No. 1. Jno. W. Hooser's, Dallas, W. B. Mills 3, 2428 TE&L sur, 150 ft to N and E lines; 4, same sur, 600 ft S No. 1.

Callahan County—Waddington & Wanamaker's, Box 838, Moran, S. S. Diller 1, S 54, L. A. L. sur, 570 ft to N and 450 ft to W line. Leslie Spoonts Inc.'s, Ft. Worth, W. H. Abrams 1, S 1, BBB&C Ry sur, center. Moutray Oil Co.'s, Cisco, T. L. Terry 1, S 47, L. A. L. sur, center. Hotchkiss & Cameron's, Box 3443, Baird, Diller Bros. 1, S 50, L. A. L. sur, 150 ft to E and 400 ft to S line. Canyon Oil & Gas Co. Inc.'s, Cross Plains, M. Kennedy 3, Bayland Asy sur. 300 ft E N. 1. Bedwell Bros.' Box 250, Cisco, M. Kane 7, 2271 TE&L Ry sur, SW Cor. Brannon & Murray's, Eastland, Diller Bros. 6, S 48, L. A. L. sur. H. J. Whitaker's, Moran, H. Wagley 1, Peter Col. sur, 750 ft to S and W lines. L. A. Warren et al's Box 272, Cisco, W. M. Isenhour 4, S 6, Bayland Asy sur, 300 ft N No. 2; 5, same sur, 300 ft S No. 3; 6, same sur, 300 ft S No. 5. Warren & Miles', Box 272, Cisco, W. M. Isenhour 3, S 6, Bayland Asy sur, 300 ft W No. 4. Sincovich, Freeman & Thomas', Cisco, G. C. Wood 9, 2299 TE&L sur, 308 ft SE No. 8.

Caldwell County — Mills Bennett's, Second Nat. Bank Bldg., Houston, Mrs. A. H. Cardwell 1, J. Burleson sur, NE cor; 2, same sur, 150 ft to N and W lines. Magnolia Petroleum Co.'s, Dallas, C. H. Beaty 2, J. Burleson sur, 900 ft SE No. 1. O. H. Powell's, Lockhart, O. Schroader 1, W. M. House sur, SW cor. United North & South Oil Co.'s, Luling, W. H. McKinney 1, Jno. Henry sur, 150 ft to S and E lines. Witherspoon Oil Co.'s, San Antonio, W. L. Caboniss 1, Wm. Cobbey sur, 500 ft to E and 150 ft to S lines. Grayburg Oil Co.'s, San Antonio, Mrs. E. A. Gomillion 7, P. Martinez sur, NW No. 5. Gulf Production Co.'s, Houston, M. L. Brewer 15, J. Burleson sur, 300 ft SW No. 14; M. L. Brewer 8, F. Castillo sur, 300 ft SE No. 8; M. L. Brewer 10, J. Burleson sur, 300 ft NE No. 9; F. A. Gomillion 11, P. Martinez sur, 1206 ft to E and 750 ft to S line; C. H. Beaty 11, J. Burleson sur, 1431 ft to E and 1289 ft to S line.

Coleman County — Shaw, Fox & Adams', Burkett, J. C. Watson 2, Wm. Mason sur, 300 ft W No. 1. Warren, Hayes & Anderson's, Box 272, Cisco, J. C. Watson 2, No. 163 Wm. Mason sur, 150 ft to S and W lines. M. M. Dabney's, Breckenridge, J. P. Morris 1, B 77, Jas. Harris sur, NW Cor.

Carson County—Culbertson Bros', Panhandle, S. B. Burnett 1, S 20, I&GN Ry sur, 660 ft to S and W lines.

Clay County — Jas. T. Cumley's, Wichita Falls, J. B. Dunn 1, B 36, Byers Bros. sur, 150 ft to N and E lines. Knox-Finley Dev. Co.'s, Wichita Falls, Saner, Saner & Lomax 5, B 45, F. Longradio sur, 150 ft to N and E lines.

Cooke County—T. E. Wallace's, Cosicana, L. M. Osborne 1, S 866, T. Rutledge sur, 1200 ft to E and 150 ft to S line. Sun Oil Co.'s, Dallas, A. M. Ludeman 1, No. 2 N. R. Sparks sur, 100 ft to N and 425 ft to E line.

Comanche County — Hill & Smith's, Sipe Springs, I. H. Haile 1, B 259, P. L. Miller sur, 1200 ft to N and 660 ft to W line.

Duval County — Texas-Gulf Sulphur Co.'s, Second Nat. Bank Bldg., Wichita Falls, M. J. Luby 1, S 142, J. P. sur, 150 ft to W and 1195 ft to S line.

Eastland County—G. L. Lyda et al's, Putnam, Mrs. D. W. Bint 1, D. W. Bint sur, 160 ft to N and E lines. Magnolia Petroleum Co.'s, Dallas, C. Allman 5, M. Finch sur, 300 ft NE No. 4; 6, same sur, 300 ft NE No. 5; 7, same

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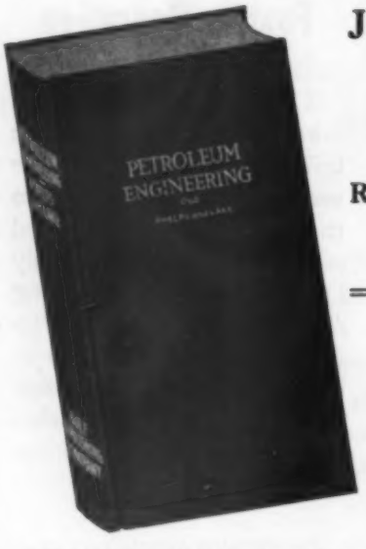

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Harris County—Southern Exploration Co.'s, Humble Bldg., Houston, M. Freeman 5, M. F. 1169 sur, 300 ft to N and 150 ft to E line. Rycade Oil Corp.'s, Humble Bldg., Houston, A. I. Northsworthy 1, C. Martinez sur, 200 ft to S and W lines. Gulf Production Co.'s, Houston, Ashbel-Smith 4, Wm. Scott sur, 50 ft to S and W lines. Marsalis Bros.', Humble, T. W. Long 6, Jas. Strange sur, 40 ft to S and E lines. East Batson Oil Co.'s, Batson, (Hardin County), Fee 9, BBB&C Ry sur, 310 ft to N and 173 ft to W line.

Hardin County—East Batson Oil Co.'s, Batson, Fee 9, BBB&C Ry sur, 310 to N and 173 ft to W line. Paraffine Oil Co.'s, Box 1791, Houston, Heywood 32, J. Knight sur, SW Cor.

Jefferson County—Acorn Oil Co.'s, Beaumont, Texas, Paraffine 55, J. Knight sur, 192 ft to E and 360 ft to S line.

Jim Hogg County—Kitzleman & St. Albans', Laredo, J. T. Vela 18, No. 580 sur, 300 ft N No. 17.

Liberty County—F. C. Hackenberger, Liberty, Fee 1, B 22, B. W. Hardin sur, 600 ft to N in center of line. Gulf Production Co.'s, Houston, Phoenix 12, J. Devore sur, 300 ft W No. 7.

Milam County—Uncle Tom Oil Co.'s, Minerva, Thos. Phillips 1, T. J. Chambers sur, 350 ft to S and W line; 2, 850 ft to N and 150 ft to E line. R. L. Renick's, Navasota, Throeder 1, Robinson sur, 1000 ft to W in center of line. Rountree, White & Simpson's, Rockdale, Fee 4, T. J. Chambers sur, 306 ft N No. 3.

McLennan County — Booker Oil Corp.'s, Waco, J. A. Roberson 7, W. R. Dallas sur, 150 ft to N and 1400 ft to E line; 8, same sur, 450 ft to N and 1100 ft to E line.

Navarro County—Atlantic Oil Prod. Co.'s, Dallas, J. N. Morrow 2, E. Hillhouse sur, 300 ft W No. 1. Barkley & Meadows', Corsicana, Hillburn 2, M. Boren sur, 262 ft E No. 1; 3, same sur, 263 ft S No. 1. Humble Oil & Ref. Co.'s, Houston, S. D. Ramsey 30, Hrs. J. Smith sur, 1315 ft to E and 708 ft to S line. De Armand Bros.', Corsicana, J. B. Bailey 1, J. Rahm sur, 150 ft to N and W lines. Gulf Production Co.'s, Houston, R. Smith 12, Taylor & Haven sur, 726 ft to E and 150 ft to S line. G. C. Kent's, Corsicana, F. Rice 1, J. McNeal sur, 450 ft to W and 150 ft to S line. Roth, Kerr & Gillette's, Security Nat. Bank Bldg., Tulsa, R. W. Sneed 1, J. B. Moore sur, 230 ft to N and 250 ft to W line. Tidal Oil Co.'s Corsicana, M. J. Thompson 5, J. Rahm sur, 150 ft to N and E lines.

Shackelford County — Phillips Pet. Co.'s, Bartlesville, Okla., A. Fry 2, 284 TE&L sur, 125 ft NE No. 1. Texas Co.'s, Breckenridge, S. S. Diller 20, S 49, L. A. L. sur, 626 ft to N and 387 ft to E line; 21, same sur, 150 ft to S and E lines. Duffy & Tollett's, Staley Bldg., Wichita Falls, C. B. Snyder 2, S 33, L. A. L. sur, 150 ft to W and 500 ft to S line. L. W. Feemeter's, Box 408, Moran, C. B. Snyder 1, S 32, L. A. L. sur, 450 ft to N and E lines. Sabens & Young's, Moran, R E Burns 1, S 68-69, L. A. L. sur, 195 ft to S and W lines. L. B. Tannehill's Albany, Mrs. S. C. Gill 1, S 67, L. A. L. sur, NW Cor. Jno. R. Eidson's, Dallas, J. S. Crawley 3, S 32, T&P Ry sur, 775 ft to E and 1240 ft to S line. Graham & Lash's, Moran, J. T. Cockrell 11, S 15, L. A. L. sur, 150 ft to N and E lines. Shertzer & Davidson's, Moran, S. S. Diller 4, S 41, L. A. L. sur, 450 ft to E and 750 ft to S line. A. A. White's, Moran, T. E. Hayden 1, B 115, Univ. Lands sur, 300 ft to W and 450 ft to S line.

Stephens County—Hart Bros. & Clayton's, Eastland, J. B. Morton 1, S 163, HT&B Ry sur, 250 ft to N and W lines. M. K. Lyman's, Box 859, Breckenridge, J. L. Langford 1, S 14, T&P Ry sur, 330 ft to N and E lines. Tripplehorn Bros.', 1610 West Magnolia, Fort Worth, J. B. Morton 1, S 123, HT&B Ry sur, NW cor. Barney Carter et al's, Box 942, Ranger, J. Langford 5, S 1, T&NO Ry sur, 280 ft to S and E lines; R. B. Pierce 2, same sur, 660 ft N No. 1, W. W. Fambrough 1, S and W lines; R. B. Pierce 1, S 3 same sur, 330 ft to S and E lines; W. W. Fambrough 1, S 123, HT&B Ry sur, 200 ft to N and 339 ft to

E line; 2, same sur, 200 ft to N and 1539 ft to E line.

Throckmorton County—W. R. Duke's, Morgan Bldg., Wichita Falls, F. Rhoades 1, S 275, BBB&C Ry sur, 620 ft to N and E lines.

Tom Green County—Chas. Denney's, Putnam, C. A. Broom 1, Mrs. C. Tankersley sur, 500 ft to N and W lines.

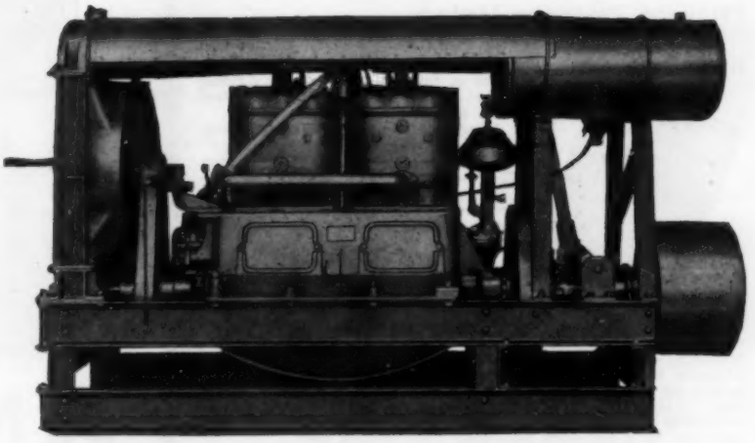
Wichita County—Tidal Oil Co.'s, W. T. Waggoner Bldg., Wichita Falls, Kemp & Kempner 1, S 52, W. V. F. L. sur, 1340 ft to N and 1319 ft to W line. Jno. W. Hooser's, Dallas, T. F. Mitchell 4, P. Castleman sur, 300 ft W No. 3. Texhoma Oil & Ref. Co.'s, Wichita Falls, S. B. Burnett 4, S 2, T&NO Ry sur, 300 ft W No. 2; 1, S 2, HT&B Ry sur, 150 ft to N in center of line. Staley & Wynne's, Staley Bldg., Wichita Falls, Waggoner Bros. 1, B 12, Wag. Bros. sur, 150 ft to S and W lines. Panhandle Ref. Co.'s, Wichita Falls, Mrs. G. Jennings 8, B 12, HT&B Ry sur, 150 ft to W in center of line. Ascot Co.'s, Box 342, Wichita Falls, J. E. Roller 19, W. A. Grady sur, 300 ft E No. 18. Gulf Production Co.'s, Ft. Worth, S. B Burnett 32, S 1, T&NO Ry sur, 300 ft N No. 28; F. Miller 1, W. R. Eaves sur, 150 ft to W in center of line. T. F. Hunter's, Wichita Falls, F. Dodson 13, Day Land & Cattle sur, 342 ft to N and 1110 ft to W line. Humble Oil & Ref. Co.'s, Wichita Falls, Glen & Kemp 3-A, B 27, W. V. F. L. sur, 20 ft S No. 3. Straus & Allen Oil Co.'s, City Nat. Bank Bldg., Wichita Falls, Kemp & Allen 6, B 26, W. V. F. L. sur, 300 ft W No. 2. Magnolia Pet. Co.'s, Dallas, Staniforth 21, H. B. Balch sur, 300 ft W No. 16. Maer & Staniforth's, City Nat. Bank Bldg., Wichita Falls, J. A. Kemp 7, B 27, W. V. F. L. sur, 300 ft N No. 5. Bonchil Co.'s, Staley Bldg., Wichita Falls, H. Beach 23, No. 4 C. T. Ry sur, 300 ft W No. 21. Ryan Pet. Co.'s, Bartlesville, Okla., Geo. Nance 35, S. O. Fowler sur, 1660 ft to N and 2250 ft to E line. White Eagle Oil & Ref. Co.'s, Wichita Falls, D. E. Hooks 3, J. R. Scott sur, 300 ft E No. 1. J. H. Cotton & Co.'s, William & Mary Hotel, Wichita Falls, J. E. Roller 3, Holloway & Mathews sur, 450 ft to N and 150 ft to E line. Williams, Conrey & McConnell's, Wichita Falls, E. Horton 2, BBB&C Ry sur, 150 ft to S and E lines; 3, same sur, 300 ft N No. 2. J. J. Moran's, Staley Bldg., Wichita Falls, W. T. Waggoner 2, A. Gibson sur, 300 ft SE No. 1. Red River Oil Co.'s, Box 712, Tulsa, Okla., B. H. Bywaters 78, S. P. Ry sur, 800 ft to N and 1400 ft to W line. Texas Co.'s, Wichita Falls, Allen & Kemp 11, B 26, W. V. F. L. sur, 450 ft to E and 150 ft to S line; 12, same sur, 150 ft to E and 828 ft to S line. W. T. Waggoner 302, GC&SF Ry sur, 2820 ft to N and 450 ft to E line. Perkins & Cullum's, Wichita Falls, S. B. Burnett 1, S 2, S. B. Burnett sur, 1510 ft to E and 830 ft to S line.

Wilbarger County — Texas Co.'s, Wichita Falls, R. L. Castlebury C-1, S 68, H&TC Ry sur, 1320 ft to W and 660 ft to S line. W. T. Waggoner 2, S 65, H&TC Ry sur, 300 ft SW No. 1. Magnolia Petroleum Co.'s, Dallas, H&TC Ry 69, S 15, B 13, H&TC Ry sur, 500 ft SE No. 68; F. Sumner 49, S 17, H&TC Ry sur, 800 ft E No. 45. Ray & Massie's, Staley Bldg., Wichita Falls, Bond, Hawkins & Williams 4, S 100, H&TC Ry sur, 250 ft W No. 2.

Williamson County—W. Caverhill Jr.'s, Carter Bldg., Houston, A. Forwood 1, S 4, B 14, HT&B Ry sur, 2400 ft to E and 1800 ft to S line.

Webb County — Magnolia Petroleum Co.'s, Dallas, Ochoa 17, I. Guiterrez sur, 500 ft NE No. 13.

Young County—E. C. Stovall's, Graham, Fee 4, B 20, Jas. Tobin sur, SW cor. C. Mooers', City Nat. Bank Bldg., Wichita Falls, J. R. Jackson 1, B 18, I. Holman sur, 150 ft to N and E lines; J. P. Atchley 1, 226 TE&L sur, NW cor. Simms Oil Co.'s, Dallas, W. B. Cheves 3, H. B. Akles sur 464 ft N No. 2. C. Mooers et al's, City Nat. Bank Bldg., Wichita Falls, A. F. Ikert 4, B 17, I. Holman sur, 308 ft N No. 3; S. R. Jeffrey 1, 198, TE&L sur. Stahl & Burgess', Ardmore, Okla., S. J. Powell 1, 1586 TE&L sur, 150 ft to N and W lines. Roamer Oil Co.'s, Kahn Bldg., Wichita Falls, E. H. Morrison 1, 3401 TE&L sur, 750 ft to E and 1433 ft to S line. Plains Production Co.'s, Staley Bldg., Wichita Falls, J. L. Kilcrease 1, 1809 TE&L sur, 151 ft to S and 514 ft to W line.



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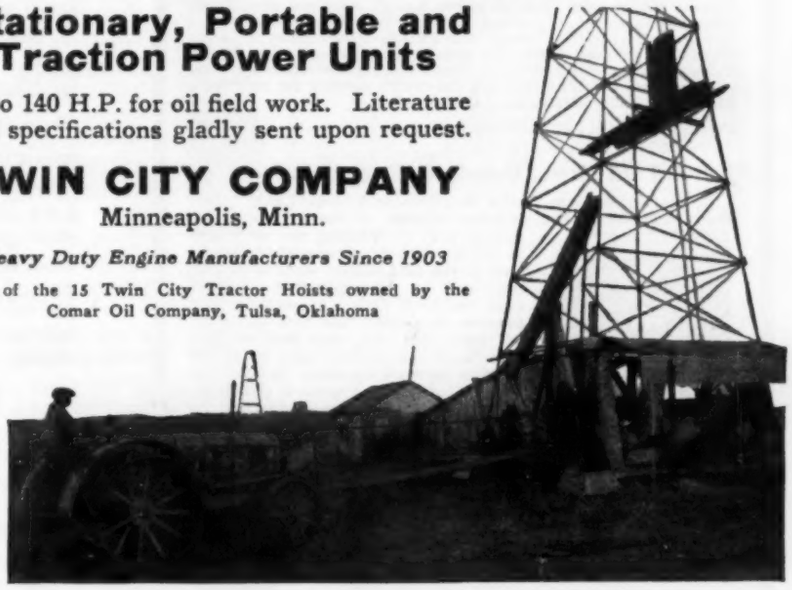

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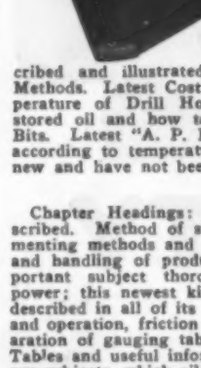

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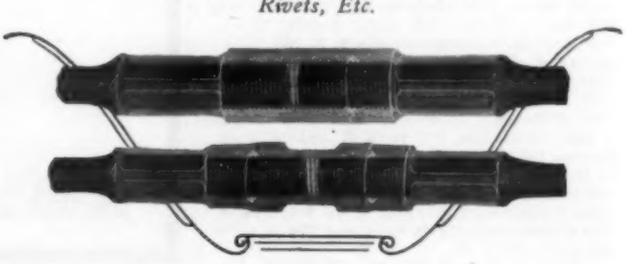
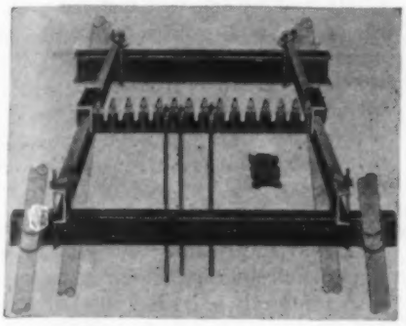


NEW EQUIPMENT, CATALOGS, BULLETINS, BOOKS

Adjustable Rod Hanger Is Introduced in Mid-Continent

A new type of sucker rod hanger and structure that is made in sections—one hanger for each 1500 feet of rods—and that is removable as other rod tools, is being manufactured and sold by the Robinson Tool Company of 205 West Archer Street, Tulsa, Okla., under the trade name of the R. & R. Sucker and Rod Hanger and Structure.



Reducing the cost of pulling jobs appreciably, the R. & R. Suncker Rod Hanger and Structure insures a clean pulling job, as chances of getting dirt on the rods, boxes and pins are eliminated. The R. & R. is made of cast steel and the structure is adjustable and adaptable to any kind or make of rig, as the change from one type of rig to another only requires the purchasing of castings and bolts for that type for the six-inch channels. The fact that the rods are placed in the same sector of hanger as pulled and when re-run, the same box and pins are made together, insures a better joint with every pulling job. There are no suspension rods or lines used that could interfere with the efficiency of workmen on the rig.

The efficiency of the R. & R. Sucker Rod Hanger and Structure has already been proven in the Mid-Continent and other fields, and some of the largest companies have them in use. The manufacture and sale of the tool is under the supervision of Hugh E. Robinson, president of the Robinson Tool Company, who will supply further information on the R. & R. Sucker Rod Hanger and Structure on request.

All Metal Pitman Has Maximum Strength

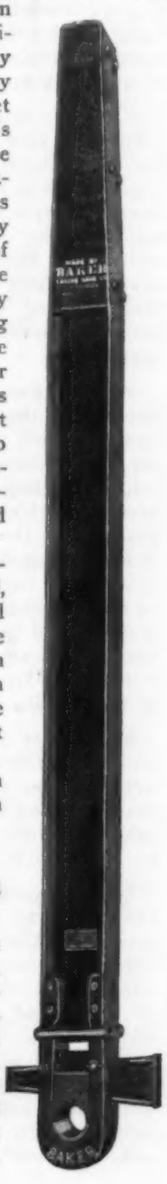
Experience in the fields has shown that seldom if ever is the bracing on a Pitman strong enough to withstand an accidental blow from the wrist pin. The new improved Baker All-Metal Pitman has been designed to overcome this difficulty. This new pitman is being manufactured by the Baker Casing Shoe Company, 803 East Slausson Avenue, P. O. Box 264, Huntington Park Station, Los Angeles, Calif.

The upper part of the pitman has a hardwood block firmly clinched between the five-inch flanges of the eight-inch I beam, which permits fitting any stirrup with little trouble.

Maximum strength is assured in the construction of the I beam.

The body is made of electric steel, fastened to the I beam by means of eight three-quarter-inch turned steel bolts, four bolts securing the prongs which extend upward on each side of the web of the I beam, and four bolts fastening the body to the flanges and fitting the handle to the pitman as well.

The upper part of the bearing is of grey iron and is provided with an oil or grease pocket which does away with the necessity of constant attention. This part of the bearing is brought against the wrist pin to the operative position by forcing the key in where it is held by its taper and a ratchet pawl. A set screw is also provided for use when there is an extraordinary strain such as a jarring job. The key or wedge is also of steel and can not come out unless intentionally taken out by removing the steel cap from the small end. The lower part of the bearing is made of hard Babbitt and of a thickness to allow for three-eighths-inch wear. This bearing can be repoured when necessary.



Bottom of the pitman body is grooved, affording a grip and doing away with the small handle which in the old style pitman was in the way of the cotter key in the wrist pin.

Further information may be secured from the company.

Valuable Book on Pipe

"Pipe and the Public Welfare," a book by R. C. McWane, being distributed by the American Cast Iron Pipe Company, is a comprehensive discussion of the development of conduits. The book contains sufficient historical and technical information to be of unusual interest to any engineer.

The text deals with the growth of the use of pipe for conveying liquids, and the subject matter goes back to the first conduits ever laid.

Chapter I is historical and gives a splendid survey of historical pipe systems. The second chapter deals with materials and methods of making metal pipe, with many illustrations of the various processes. Chapter III is devoted to technical and historical data on metal pipe deterioration, and is the most important part of the book. The last chapter deals with wood pipe.

Further information about the book can be secured from the American Cast Iron Pipe Company, Birmingham, Ala.

Fetty Pump in Two Sizes

El Dorado, Kan.—The Fetty long stroke pumping attachment now is being made in two sizes, the five-foot stroke and the six-foot stroke. This has been done to meet a demand in the oil country for a longer stroke pump. The Fetty attachment can be regulated so as to give from four inches under to ten inches over the rated stroke if desired. The attachment now is being manufactured from cast chrome vanadium steel. General sales offices of the company are maintained here, with branches in Tulsa, Okla., and Long Beach, Calif.

Axelson Announces Number Of Promotions in Personnel

Los Angeles, Calif.—Because of the increase in business and the necessity of expanding its organization, the Axelson Machine Company has made a number of changes in its personnel, advancing loyal members of the organization to positions of greater responsibility.

Alvin Zwerneman, who has been in charge of the Dallas territory, is now in Tulsa, and will handle all of the Tulsa division.

Miles Hammett has taken Mr. Zwerneman's place at Dallas, and Hammett's former district, Houston, is to be covered by A. A. Dill, whose headquarters will be at 4220 Lamar Avenue, Houston, Texas.

L. M. Kincaid has just been appointed office manager of the St. Louis factory, and L. G. Trembley has been appointed sales manager of the California division.

Thomas Ward, manager of the New York office, who has been in Los Angeles for several weeks studying conditions at the Axelson factory, has returned to the Atlantic Coast.

LETTERS OF Paul Peebles P.S.G.

mi deer cleopatry

well cleo hunny I am just sorry. when I told yu it wood be a good ideer for yu 2 cum up 2 huston for the 4th & me & yu wood play around together I did not no if yu wood do it or not & I did not here from yu that yu was commin, so how did I no that yu was cummin. so that is the reesen that I was gone from town when you gotten hear. hunny yu ort 2 hav let me no about it. I will alwaze be sorry about it, but I do not sea how I can help it. I hoap ennyway that yu had a good time whilst yu was up hear but I no yu wood a had moar enjoyabler time if I had bin here 2 be with yu & show yu around. but how cum I was not here was the widder asted me if I wood not take her sumwheres for the 4th & she wanted 2 start out friday nite so we went then & I clean forgot that yu was plannin mabe 2 cum up hear satterdy, so I was cleen gone 2 louisiana when yu gotten hear. hunny I wood a not done yu thataway for the werld if I had noed, but yu sea how it is. I hav asted yu 2 cum up hear before & yu alwaze cum but this time I did not no if yu was or not so that is the reesen that I left. if yu will not hold it agenst me hunny I will make it up 2 yu sumtimes & everything will be alrite.

hunny I am kinder discouraged on account of a dirty trick whitch has bin played me bi sum geeologists up 2 shreesport whitch has tooken a noshun 2 name all the sands in arkansaw & did not none of them hav sents enuff 2 no that I was entitled 2 hav 1 sand named after me on account of me bein a produck of that region & also the discoverer of the ideer that it aint no tellin how menny sands it is under the elderedo district on account of I got that ideer also at goose creek.

of corse I was too modest 2 suggest sutch a thing but it wood a bin kinder graceful of them if they had name the deep sand at smackover the peebles sand and thereby not onli honered me but a name whitch is a good 1 in that perticular part of arkansaw on account of the peebleses being the original discoverers of them parts when they cum out there just a little while after columbus discovered amerika & mi grate grate grand paw killed a bare & hung it up on a black gum tree rite where the ralerode crosses the creek. & in mi yung days I chased rabbits all over that cuntry & discovered the oil sines whitch was then showin moar plain than they was when oil was found there, onli I did not no then what they ment. but all the same it was me that suggested that it ort 2 be sum moar oil under what they had at first & it was on mi suggeestshun that they drill the deeper holes whitch it was a lot of fellers thunk wood play hell with the oil bizness.

so yu sea hunny they ort 2 call it the peebles sand on account of me & mi fambly whitch has bin old settlers in them parts whitch wood giv the sand a good soundin name whitch everybody wood not hav no trouble rememberin & oil wood just as soon cum out of a peebles sand as enny other.

& if they would not want 2 call it peebles on account of sum peeple callin the name like it was little rocks whitch I gess it is a hole lot of all over arkansaw, they cood a called it the paulus sand or the paulene sand, both of whitch has kinder furren soundin perclivities whitch is not only fonetical in their musical properties but is filled with deep meenin whitch is suted 2 a deep sand.

only arkansaw is kiddin about a deep sand when they aint payin no notis 2 how deep oil wells has bin drilled in say california forinstants. why out in california they hav got oil wells so deep & so thick that when it is a erthquake even the chamber of commerce at lost angles does not no nuthin about it, because the casins hold her down so they do not feel it. but I gess mabe it must be a long way from santa barbara 2 lost angles because it shore is a long way from here & huston is rite in the middle of things.

but I gess yu notis that they dont mine namin towns in california & minnysoter after me even in spanish. so that is a good argument for namin a oil sand after me 2, so yu sea I am not so stuck up & presumpshus.

but now suppose they was 2 name the deep sand at smakover the paulene sand, well the "ene" on the end wood allow for enny amounts of salt water whitch mite cum out of it, on account of if yu had evver bin 2 nite school like I done yu wood no that "ene" on the end of a werd means salt on account of they say salene domes when they meen salt dooms, whitch meens salty salt on account of "sal" meens salt and "ene" meens salt too.

but I gess mabe they is waitin 2 find a sand whitch aint got no fossils in it 2 name it the peebles on account of it aint no fossils in our fambly. so they want a sand whitch will conform 2 the fambly name bi bein corse graned and pebbly and whitch will test out palentologically and zologically with the phonetically harmonyous simetrestricity of the grand old name of peebles. & ennyway our name is pretty well rit in arkansaw like it is even if most of mi ansestry did hav 2 sine deeds with a mark.

I never did tell yu the erly histry of mi fambly in arkansaw but just 2 keep yu from feelin bad because they did not name that sand after us, I will tell it 2 yu.

well in the beginnin when the first peebles cum 2 arkansaw about 1782 he seems 2 hav bin kinder in a hurry 2 git away from where he cum from & he thort he was about 2 the tale end of nowheres when he got 2 elderado & started makin a clearin for the cort house. his ideer was that he wood hav a cort house whitch he cood say what wood be did in it. well his name was pebbles but on account of that not bein a verry common name like smith or jones he thort it mite be a good ideer 2 change the spellin of it a little along with puttin sum walnut juuce on his whiskers, whitch shows how smart he was bi not takin anny chances.

well then a little later 1 of the boys got in2 sum kind of a jam & desided he wood move off a little so he went up the cuntry a little & desided he wood call the place where he stopped pebbles so as 2 preserve the old fambly name but the post office department sed that that name sounded 2 mutch like anuther postoffis in the state whitch I do not no now what it was on account of I gess it is burned up or sumthin. so ennyway he was a bull heded cuss like all of us peebles is, so he sed if he cood not call it pebbles he wood call it little rock, & hunny there she stands.

well hunny this is gittin 2 long for me 2 tell yu the rest of the reesens why I was gone when yu gotten hear on the 4th of July & hunny it shore does make me soar that I got mi dates mixed up like that, but yu will no how it is hunny & will not hold it agenst me because I will make it alrite with yu sum ways if yu will only giv me a chanct.

yore lovin paul.

SQUEAKS FROM THE BULL WHEEL

An American business man and his wife were stopping in Paris near the Notre Dame Cathedral. One Sunday morning on the way to church the bells started ringing with unusual resonance and vigor.

"Aren't those chimes beautiful, John?" asked Mrs. Smith.

"What did you say?"

"I was just remarking, dear, how beautiful the chimes are this morning," she replied.

"Wait a minute," shouted Smith, "those damn bells are making so much racket I can't hear a word you are saying."

Mrs. Grabb: "I can tell without asking whether John has won or lost at poker the minute he comes home."

Mrs. Gabb: "How?"

Mrs. Grabb: "If he has lost he throws his pants across the foot of the bed. If he has won he puts them under his pillow."

"I hear there is only one picture of Rockefeller in existence, and that is a water color."

"Yes, you see they couldn't do him in oil."

Teacher: "What is a stoic?"

Charley Cheyenne: "A stoic is a boid what brings th' babies."

Two traveling salesmen met in an Anaheim hotel and one muttered inquiringly:

"Klux?"

"Yes, cluxs and suits."

"He says he thinks I'm the nicest girl in town, shall I ask him to call?"

"No, dear, let him keep on thinking so."

"We can't accept this poem. It isn't verse, merely an escape of gas."

"Ah, something's wrong with the meter."

Doctor: Congratulations, Governor, you're the father of triplets.

Governor: I demand a recount.

She: You drive awfully fast, don't you?

He: Yes, I hit 70 yesterday.

She: Did you kill any of them?

Mary, you have a brand new baby sister.

Oh, Daddy, can't I be the first one to tell mother?

I suppose you are saving for a rainy day?

No, but I've got twenty bucks ahead for a wet night.

Judge: Have you ever been up before me?

Accused: I don't know. What time do you get up?—Cannon Bawl.

What's the height of chivalry?

Giving a lady your seat in a barber shop.

He: I wonder how long I could live without any brains?

She: Time will tell.

Professor: Write a brief biography of some business man with whom you are acquainted.

Student's Biography: Was a bootlegger. Is a banker.—Signed Tommy Jones.—Bison.

Fred (horseback riding)—Hey, you! Don't stop your car in front of my horse.

Paul—Don't worry, I know the rules. Don't park in front of a plug.

Self-made men won't be quite perfect until the noise is eliminated.

You wish to marry my daughter? But what, young man, are your prospects?"

"Well, sir I am very good at finishing limericks."

Prehistoric

"Yes, this happened in 1914, B. V. D."

"What do you mean by B. V. D.?"

"Before Volstead Days."

Mother and little daughter met an acquaintance whose "Hello, honey," received no response.

"Why didn't you speak to that gentleman?"

"Why, mother, I thought he was speaking to you."

"They don't treat us very good after we are dead."

"Why John?"

"After they lay us on our backs they shovel dirt in our face."

"Then it is settled we are to elope at midnight?"

"Yes, darling."

"And are you sure you can get your trunk packed in time?"

"Oh, yes, papa and mama have both promised to help me."

Just think, 3000 seals were used to make fur coats last year.

Isn't it wonderful that they can train animals to do such work?

"How is the efficiency expert getting along in your office?"

"Fine, we hired him for a week and he taught us five new excuses for being late and three ways to beat the time clock."

"Would you say 'Yes' if I asked you to marry me?"

"Would you ask me to marry you if I would say 'Yes' if you asked me to marry you?"

Storekeeper: What's the idea of breaking my window?

Inebriate: Jush wanted to see through it, thash-all.

"Zella, spell the word 'air'."

"Teacher, do you mean the 'air on my 'ead or the hair houtside?"

"Telling lies is NOT one of my failings."

"No, it's your success."

A lawyer pleading his first case against a railroad for killing twenty-four hogs: "Twenty-four ,gentlemen of the jury, twenty-four. Twice the number in the jury box."

"What! You're hard of hearing and you want a position in our telephone exchange?"

"Yes, sir. At least I'll have an excuse for not answering."—L'Illustration (Paris).

He: "Darling, do you think you could live on twenty-five dollars a week?"

She: "Yes—but no longer."—Florida Times-Union.

"So you have been married before, Mrs. Smith?"

"Yes, ma'am, three times; and if it plases 'eaven to take this one, I know where I can lay my hands on a fourth."

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Uncertain Market Has Held Up Mountain Wildcat Work

Casper, Wyo.—Pipe line runs in the Rocky Mountain region have decreased steadily for the past 18 months but the industry as a whole is in a better condition than at any time since the disastrous slump of 1921, when the price of oil fell from $2.75 to 50 cents per barrel. Many of the smaller companies which were able to pay dividends during the former period have dropped by the wayside, as their leases were exhausted, but the principal producers that were able to weather the storm now find themselves in what may be considered a fairly prosperous condition. Salt Creek oil now commands an average of $2.00 per barrel and most of the other fields produce a grade of oil almost as good. Economy in operations and an unusually good demand for crude have brought about the healthy conditions now prevailing. Large operators, fearing the usual cuts in the prices of crude, did not inaugurate the wildcatting program originally planned in the early spring. It is now so advanced in the season that pioneering before fall and winter would be somewhat hazardous. Some of the larger companies admit that this would have been an ideal year for an extensive wildcatting campaign, but they, naturally, could not tell just how the demand for crude in this district would be sustained.

The Midwest Refining Company and the Standard Oil Company of Indiana jointly shipped 9,000,000 gallons of gasoline from Casper to Baton Rouge, Louisiana, during the month of June. All of this was purchased by the Standard Oil Company of Louisiana for its export trade and is a part of 100,000,000 gallons to be delivered at Baton Rouge by the Casper refineries.

Producers and Refiners Corporation has completed a 30,000,000 cubic foot gas well on the Mahoney dome, near Rawlins. This test is considered significant because of the 900-pound rock pressure present. This corporation has a 90 mile gas line from this district to Casper and the new well can easily be utilized. Other tests are being drilled by this company.

Completions in the Salt Creek field are on the wane, although wells in the process of drilling compare favorably with the number of one month ago. The Midwest interests will not have as many completions in the immediate future as in the past month but independent operators are expected to bring in several dozen wells within the next two months. Most of these will be edge wells but practically all may be reasonably expected to be producers.

The Dry Piney test of the Midwest

Refining Company, Section 7-37-114, which has been standing for more than a month at 4002 feet, may not be abandoned, as was announced some time ago. The Midwest is drilling the well under an operating agreement with the Utah Oil & Refining Company, one of its subsidiaries. The original called for a depth of 4000 feet. When this was attained, drilling was stopped. Some shale oil was found at 1920 feet, and it is understood that the Bureau of Mines has insisted that the shale at this depth be tested before the hole is abandoned.

Although there now exists a 2½ cents gasoline tax in the State of Wyoming, some cities within the state are working on a plan to place a municipal tax on gasoline in addition to the regular state tax. If this plan goes through, it is understood that test suits will be inaugurated immediately to test the validity of such an action.

Completions in Montana continue to set a dizzy pace. Most of these are in the Kevin Sunburst field. This pool, regarded years ago as a very small one, is being extended in almost every direction. The latest well of the Big West Oil Company, located on Section 31-35-1, is making more than 50 barrels per hour through a two-inch flow line. The Ferdig interests' well, Section 30-35-1, is still making about 100 barrels an hour from a depth of 1500 feet. Eight other wells, most of them small, were completed within the week. Many of the largest companies in the United States are rushing tools on to leases in this field.

Several plans are under way to furnish natural gas to the City of Great Falls, Mont. Canadian interests are trying to obtain a franchise to pipe gas from the Alberta fields to the Montana city. Local interests also are attempting to obtain the permit. Great Falls is a city of 30,000, but has no natural gas because an adequate supply has never been available.

The rumors that the three wells of the Union Oil Company, located on the Fort Collins dome, had ceased flowing permanently, were given a sharp setback last week when it was announced by the company that two of the wells, Ver Straten No. 1 and Whitaker No. 1, had come back in good shape after a thorough cleaning. Meyer No. 1, the last well to be completed, has never flowed, but officials of the company have announced that they are confident that it will flow if properly tubed and agitated. It was generally conceded that the gas pressure in the field had gone down. Subsequent developments have disclosed that the bentonite formation may have swollen from saturation and shut the oil out of the bottom of the casing.

Devil's Steel Hand

An Experience Worth Over Five Hundred Dollars

In drilling their No. 4. Gummerall at Eastland, Texas, the States Oil Corporation broke the box off a 5½-inch stem in 12½-inch hole. They pounded the top of the box awhile and jumped the pin. The box fouled in the hole so that they could not get a socket to catch anything.

They then went in with an 8-inch bit and drilled down alongside the 12½-inch bit. Then the box was tickled off down into the 8-inch hole. A socket was run and caught the 12½-inch bit and they jarred it out alongside of the box. This forced the box tight against the back side of the 8-inch hole, making the hole 12 inches one way and about 16 inches the other way. A Steel Hand, with two fingers, which tool would go through the 12-inch hole and open up to the 16-inch was used to work the box out into the hole. The box was then picked up with a regular four prong 12½-inch Devil's Steel Hand.

Upon bringing this box out, Mr. John W. Knox, Sr., of the West Virginia Drilling Company, the contractors for this well, stated that he would not have the box back in the hole and be without the use of a Devil's Steel Hand to take it out again for $500.00.

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Los Angeles Movement Makes Record in June

Los Angeles, Calif.—More crude oil and other petroleum products moved out of Los Angeles Harbor for all points during June than for any month in the past year and a half, or since records have been kept carefully by the Marine Exchange of the Chamber of Commerce.

During June, a total of 10,515,626 barrels of all products moved out of the harbor. Of this total, almost half was crude oil, with 3,108,165 barrels of fuel, 1,860,918 barrels of gasoline, 204,305 barrels of kerosene, 118,947 barrels of Diesel, 3638 barrels of distillates and 13,838 barrels of crude naphtha making the grand total.

Of the crude movement, 3,343,859 barrels went to points on the Pacific domestic coast, 145,864 barrels went to Pacific foreign ports, 1,612,092 barrels went to Atlantic domestic and 110,000 barrels to a foreign port on the Atlantic.

Of the gasoline movement, 444,442 barrels went to Pacific domestic, 1,662,538 to foreign Pacific points, 952,840 barrels to Atlantic domestic and 463,641 barrels to Atlantic foreign.

The fuel oil movement was divided as follows: Pacific domestic, 1,150,500 barrels; Pacific foreign, 1,662,538 barrels; and Atlantic foreign, 295,127 barrels.

Most of the kerosene, 201,880 barrels, went to Pacific foreign.

Smith Separator to Represent Rhodes

Tulsa, Okla.—The Smith Separator Company has been named factory representative and distributor for California for the products of the Rhodes Master Packing Company of Houston. The Smith Separator Company offices are at 2041 East Thirty-Eighth Street, in Los Angeles, and are in charge of Walter Edgar, who is well known to the trade on the West Coast.

General offices and plant of the Smith Separator Company are located in Tulsa, and the company has offices in Texas and New York, with foreign connections as well. M. F. Waters is general manager of the company, which manufactures the Smith separator and the Waters gauge cocks.

Marine Leases in Montebello

Long Beach, Calif.—The Marine Oil Company has recently leased ten acres in the Montebello field and will start at least one test at once. This tract is located near present operations of the Standard Oil Company and St. Helens Petroleum Corporation. The Marine has also leased 1200 acres near Pueblo, Colo. The tract will be drilled immediately.

Fire Wall Construction for Oil Storage Tanks

(Continued from page 46)

a borrow-pit toward the tank, and the slope made as steep as soil conditions will permit, will produce an effect similar to these small auxiliary vertical walls; but on account of the relative ease with which the wave passes over a wall with sloping sides, the mound is not nearly so effective as the vertical wall.

The same principle of breaking the force of the wave just as it starts can be applied in the case of reservoirs by building a small mound just at the toe of the reservoir slope. Another application of the same general principle consists of roughly plowing the surface of the ground between the tank and the fire-wall. The tests indicated that this would serve to break up the energy of the waves sufficiently to enable a given wall to stop a considerably higher boil-over than if the surface between the tank and the wall were smooth.

A factor which adds materially to the value of this study has been the possibility of applying the principle to emergency construction. This was well illlustrated in a recent crude fire in the Midway Field in California. Four large tanks burned and boiled over, but the management was able to save the pump-house and other buildings distant only about 160 feet from the nearest tanks, by throwing up emergency earth walls against the back of which were placed corrugated galvanized-iron sheets which projected several feet above the top of the wall and thus provided a coping tipped toward the fire. These walls proved entirely effective in stopping the boil-over and saving the buildings. (See Fig. 16.)

Personnel

The tests herein described were conducted by the Technical Staff of Standard Oil Company of California under the direct supervision of the writer. The equipment was designed by Mr. A. Kremser, the tests were actually made by Messrs. H. J. Berg and E. F. Post, and the results collated by Mr. G. O. Wilson.

APPENDIX

Preliminary Tests to Study Theoretical Applicability of Model and Performance of Apparatus

Theory of Model Application.—Although it was never intended to make quantitative use of these model experiments, it was hoped that in spite of the small scale they would show relative efficiencies among themselves. A number of exhaustive studies of the application of models to various engineering problems have been presented in recent years. In their paper[8] describing the experiments with models of the Gilboa Dam, R. W. Gausmann, M. Am. Soc. C. E., and C. M. Madden, Assoc. M. Am. Soc. C. E., stated that

[8]Transactions, Am. Soc. C. E., Vol. LXXXVI (1923), p. 300.

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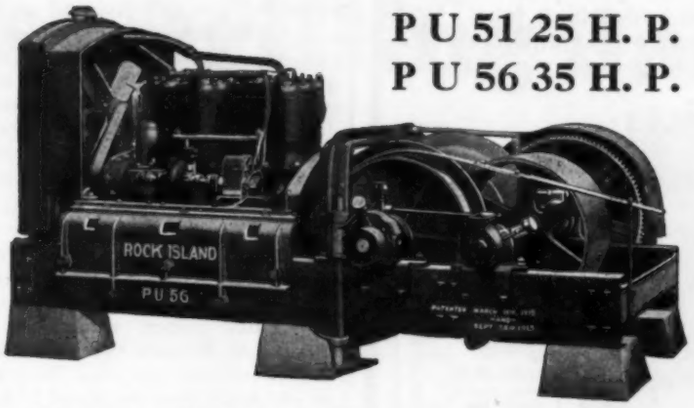

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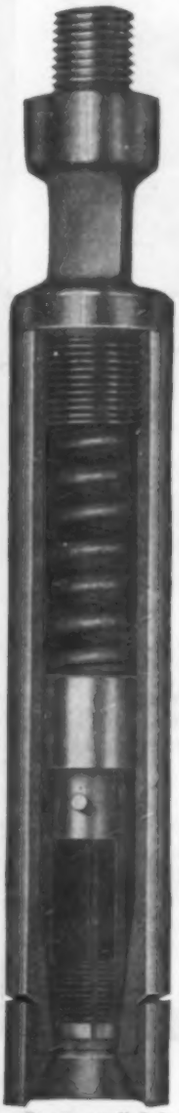

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Bowls or Guide Noses threaded to fit this end

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The O. W. Combination Rod Socket will catch any rod from 5/8-inch to 7/8-inch without changing slips.

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"if a model of a weir or channel is geometrically and mechanically similar to its prototype, the velocity will vary as the square root of the scale ratio."

In the model experiments here considered, the criterion of comparison is the height of wall which will be topped by various spills. As this height will be approximately proportional to the square of the velocity, and as the velocity, in turn, will be in proportion to the square root of the scale ratio, it would appear that the results of these experiments will be approximately in direct proportion to the scale ratio; or what is more important, will show approximately true relative proportions between different tests.

Performance of Apparatus.—In the first trials of the apparatus it was observed that considerable difference in the behavior of the wave resulted from apparently minor variations in the method of opening the gate. A standard procedure therefore was adopted in which the operator stood in a certain place and jerked the rope hard enough to throw the gate up with considerable impact against the supporting beam.

The next point to be investigated was the proper criterion for judging the performance of the different shapes and heights of model walls to be tested. It was at first felt that the maximum height of spill which any given shape should be credited with retaining was that for which the top of the wall and the space in the end of the trough outside of the wall (designated by A in Fig. 2, and spoken of hereafter as the "tail-board") remained absolutely dry. It was found, however, that this depended too much on accidental splashing when the wave hit the wall in some peculiar way; and it was finally decided that the criterion should be the condition where not enough water splashed over the wall to cause any measurable quantity to run off the tail-board.

To check the accuracy of the so-called "dry point" thus determined for each wall, the following procedure was adopted: Starting with a spill which would be large enough to throw a considerable percentage of water over the wall, a series of runs was made, gradually decreasing the size of spill until the dry point was reached. Several more runs were made after reaching this point with still smaller quantities, to make sure that these would be completely retained by the wall. By placing at the end of the tail-board a collector pan discharging into a 5-gallon can, the quantity of water passing over the wall in each test could be measured. These quantities were plotted as a percentage of the total quantity discharged in any given spill; and the intersection of the curve thus obtained with the base line gave a good check on the accuracy of the dry-point found. The curves of Figs. 17 and 18 are typical examples of these "percentage over" curves, whereas the final summarizing curves, Figs. 5, 12, 13 and 14, show only the dry points for the different sizes and shapes of wall. As explained (page 730), Fig. 19 compares the different shapes on the basis of 99 per cent of the spill being retained, instead of 100 per cent as in Figs. 5, 12, etc.

One other preliminary step before starting the actual comparison of different sizes and shapes of wall was to investigate the effect of varying the height of the box.

Government Makes Leases In Rocky Mountain Area

Washington, D. C.—The granting of four oil and gas leases on public lands is announced by the Secretary of the Interior, from which the government will derive nearly a half million dollars in royalties.

A royalty of $409,564 was paid by the Texas Production Company for a lease on 640 acres in the Salt Creek field, Wyoming; $12,304 was paid by the Transcontinental Oil Company for several tracts lying partly in the Hamilton Dome field in Colorado, from which approximately 80,000 barrels of oil were produced prior to the filing of the application; 743 acres in the Kevin-Sunburst field in Montana were leased to John N. Moore, Great Falls, Mont., and 34 acres in the same field were leases to William Seabrook.

Eastern Pipe Line Movements

Pittsburgh, Pa.—Crude oil movements through pipe line systems east of the Mississippi river during May as compared with the same month of last year were as follows:

	Runs from Wells		Other Receipts		Regular and Other Deliveries	
	May, 1925	May, 1924	May, 1925	May, 1924	May, 1925	May, 1924
Buckeye Pipe Line	430,017	418,739	1,987,315	1,890,694	2,260,041	2,120,909
Total 5 months	2,163,536	1,970,107	9,848,237	8,199,294	12,510,594	10,917,162
Eureka Pipe Line	342,453	372,494	364,112	299,937	790,721	558,537
Total 5 months	1,705,210	1,834,145	2,410,507	2,781,193	3,779,048	4,720,879
National Transit	156,690	190,626	634,553	471,231	806,841	810,186
Total 5 months	814,427	916,420	3,527,310	4,725,088	4,372,162	5,913,562
South West Penn	90,052	85,544	563,115	419,782	649,061	487,858
Totals 5 months	398,162	466,669	3,176,335	4,082,580	3,545,984	4,460,842
Indiana Pipe Line	11,250	12,812	2,194,100	1,927,616	2,208,537	1,929,754
Total 5 months	56,513	57,655	10,511,481	9,628,776	10,567,119	9,741,973
Cumberland Pipe Line	307,695	372,609	195	148	281,345	370,250
Total 5 months	1,533,483	1,810,823	641	727	1,593,090	1,944,176
Southern Pipe Line	...	...	273,217	235,045	257,930	162,488
Total 5 months	...	...	935,808	1,929,752	1,062,748	2,313,558
Crescent Pipe Line	...	...	21,590	...	...	...
Total 5 months	...	...	21,590	45,633	8,357	95,904
New York Transit	18,012	19,947	547,508	409,600	487,290	507,491
Total 5 months	92,869	82,729	3,260,025	2,290,435	2,097,935	2,766,360
Northern Pipe Line	...	...	738,831	795,010	845,409	653,787
Total 5 months	...	...	5,199,421	3,312,516	5,165,414	3,245,349
Illinois Pipe Line	664,740	731,111	498,187	192,021	1,403,678	867,182
Total 5 months	3,361,945	2,764,813	2,087,126	771,134	5,559,144	3,525,948

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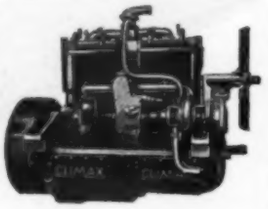

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Field Operating Economy Boosts Mountain Output

Casper, Wyo.—The unprecedented demand for crude in the Rocky Mountains has caused all of the major operators to seek not only new sources of production but ways of getting more oil from the leases already under development. In the oil business—certainly in this district—the problem of producing two barrels of oil where only one was produced before is giving the operators the most serious thought. Production in this district increased more than 8,000 barrels during the past week and a large part of this can be traced to economy in operation. New production accounted for some of the production, to be sure, but the cleaning of wells and general efficiency more than offset this.

Five years ago wells in the Salt Creek field were finished and connected in a sort of haphazard way. The wells nearly always flowed. Lines were thrown on top of the ground and exposed to the heat and cold the year 'round, not to mention the several dozens of various vehicles which passed over the flow lines. Now it is a case of get the oil or the other fellow will. It is this particular fact that has brought about such changes of efficiency all over the district. Pipe lines were offered more oil than they could carry. The refineries could not use the oil. The purchasing companies urged the producers to conserve. All of the conditions formerly prevailing are now exactly reversed. The call for efficiency—and more oil—is plainer than ever and it is being heeded by every company in every field.

The Continental Oil Company has shot its deep test in the Salt Creek field at a depth of 2464 feet in an effort to bring about production in what is supposed to be the Morrison formation. The hole was bridged by the shot and an effort is being made to clean out the broken formation. The sand was thin but fairly well saturated. Other deep tests nearby tend to discourage the presence of oil in the Lakota sand in this part of the field, hence the belief that the sand in question is the Morrison.

The Producers and Refiners Simpson Ridge test, now in the process of abandonment, is the deepest test ever drilled in Wyoming, having attained the depth of 7200 feet. Some signs of oil were found but no commercial production was encountered.

The well recently completed on the Notches Dome by the Marland Oil Company of Colorado is now flowing and will produce about 350 barrels of oil daily, from a total depth of 2775 feet. The well did not flow when first completed. The Marland interests control more than 3000 acres on this structure and are preparing to drill another well.

Actual mapping from the aid of naval

shale reserves Nos. 1 and 3 will be begun early in July by army aviators, who will fly from San Diego to Rifle, Colorado, where the reserves are located. The government recently appropriated enough money to thoroughly test the shale possibilities of the reserves.

Activity in the Kevin-Sunburst field was given impetus last week by the completion of the Ferdig-Anderson Syndicate's Anderson No. 7, which tested 2400 barrels during the first 24 hours run. This well is located on the southeast quarter of section 30-35-1 and is the second gusher brought in by these interests during the present month. The test showed the oil to be free from water or sediment.

Pipe line companies are building feeders in every direction in the Kevin-Sunburst field in an effort to transport the oil from wells recently completed. The Illinois Pipe Line Company is the most active in this respect. Three and six-inch gathering lines are being strung to the new Ferdig-Anderson wells.

Developments in Colorado continue to be disappointing. Operating agreements recently were reached between some of the largest operators in the state relative to the development of the Rangely structure in Rio Blanco County, near the Utah state line. The Texas Production Company will be actively in charge of the first test.

"Goblins 'll Get You" New Oil Field Safety Picture

Tulsa, Okla.—"The Goblins 'll Get You" is the title of the new two-reel motion picture just completed by the safety council of the Mid-Continent Oil & Gas Association, made under the auspices of the Bureau of Mines in the oil fields of Oklahoma and Kansas.

The first showing of the film will be in the Smackover field of Arkansas, after which it will be taken on a tour of the fields in Texas, Louisiana, Oklahoma and Kansas.

Ray E. Miller, safety director of the Mid-Continent Oil & Gas Association, recently made the announcement that the Pacific Coast operators were becoming interested in universal safety work and that steps would be taken at the national safety council meeting at Cleveland in September to standardize the work in all fields of the United States.

Caddo Extension Into Texas

Shreveport, La.—William Gross et al's Mebane Stiles No. 1, in Marion County, Texas, a short distance west of Trees City, La., and on the western edge of the Caddo field, blew in Sunday night with an initial production of 500 barrels of 40 gravity oil by heads, from a depth of 2339 feet. Formations reported running higher than the old field, which may indicate an important extension into Marion County. Tuesday the well was flowing 300 barrels.

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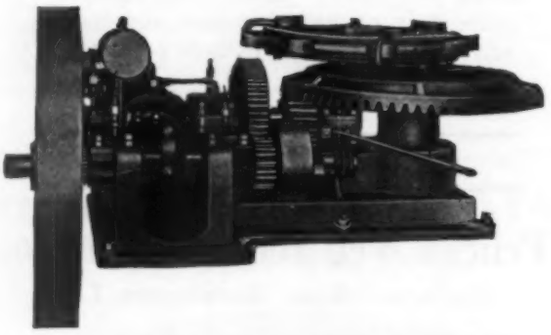

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(Continued from page 52)

to light waves in that they are reflected, absorbed and refracted. Therefore, when radiant waves fall on a body, one portion is reflected, another portion is absorbed and, if the body or matter is very thin or transparent, a part is transmitted. The nature and color of a body determines the extent to which it is heated by the absorption of radiant waves.

"Many laboratory tests have been made in order to determine the effect of color upon the absorption and reflection of radiant waves. The results of a test by Gardner[1] are shown in Table 1.

Table 1.—Rise in temperature of benzine contained in small tanks painted in various colors (gloss finish), when subjected to rays of a carbon arc for a period of 15 minutes.

Color—	Rise in Temp. Degrees F.
Tin plate	19.8
Aluminum paint	20.5
White paint	22.5
Light cream paint	23.0
Light pink paint	23.7
Light blue paint	24.3
Light gray paint	26.3
Light green paint	26.6
Red oxide iron paint	29.7
Dark Prussian blue paint	36.7
Dark chrome green paint	39.9
Black paint	54.0

Table 2.—Rise in temperature and percentage loss by volatilization in small tanks filled two-thirds full with naphtha and exposed to the sun for two hours.

Color of Tank	Temp. of Naphtha Degrees F.	Loss of Naphtha by Volatilization Per Cent
Black	111	9
Bright red	109	8
Dark red	108	8
Dark green	108	8
Battleship gray	106	6
Tan	104	5
Red primer—White top coat	102	6
Cream	102	5
Pale blue	102	5
White	100	4

"Table 2 shows the results of another test by Gardner[2] on small tanks of different colors filled two-thirds full with naphtha and exposed to the sun for two hours.

"These laboratory tests indicate that the color an oil storage tank is painted probably has a material influence on the rate of evaporation.

"Since the value of vapor-tight tanks, properly equipped, is well known to the oil industry, it is unnecessary to discuss that phase of tank construction here. Even with vapor-tight tanks, however, there are material evaporation losses due to the 'breathing' of the tank. The 'breathing' of a tank is caused by the 'sucking' in, or expelling of air from the vapor space above the liquid owing to the variation of atmospheric conditions. The amount

[1]Gardner, H. A., The Heat Reflecting Properties of Colors Applied to Oil and Gas Storage Tanks: Circular 44, Paint Manufacturing Association U. S., 1917.

[2]Gardner, H. A., Paints or Light-Oil Storage Tanks and a Note on Spray Equipment: Circular 131, Paint Manufacturing Association U. S., 1921.

of gasoline vapor in the air-vapor mixture expelled from a tank depends upon the vapor pressure of the oil. There are several factors that influence the breathing of a tank, and the amount of gasoline vapor in the air vapor mixture, but the most important is probably temperature.

"The laboratory tests which have been published in the past indicate the desirability of painting storage tanks, for gasoline and crude oil of high gasoline content, with a light color. However, these tests do not show the actual saving that may be accomplished by the use of light-colored paints, as the tests have been made on small tanks, which are more rapidly affected by the sun's heat than the larger tanks. Furthermore, the tests do not cover long periods of time.

"In order to make this comparative test cover as wide a range of colors as possible, with the facilities available, four 55,000 barrel tanks were painted black, red, battleship gray and aluminum, respectively. Black, red and battleship gray are colors much used in the oil industry. Aluminum was selected because it gave the most satisfactory results in the laboratory tests as shown in Table 1.

"The tanks used in this test were each of 55,000 barrels capacity. The roofs were of wood covered with 22-gage galvanized iron sheets crimped to form vertical joints one way and flat seams at right angles. All seams were riveted and soldered. The roof was bolted to the top angle, using a lead gasket to make a gas-tight joint. The bolt spacing was about two and one-half inches, center to center.

"Each tank roof was equipped with four gage hatches and a 6-inch breather line, the latter extending outside of the fire dike and protected with fire screens. Each hatch consisted of an 8-inch flange securely bolted to the roof, and fitted with a plug.

"Every effort was made to keep these tanks vapor-tight throughout the duration of the test. Before the initial gauge was made each tank was inspected and every leak calked. At regular intervals inspections were made and seam leaks that had developed were calked.

"The last coat of paint was applied after the tanks were filled with oil. The roof of each tank was painted at that time.

"The tanks were filled with fresh Burbank crude pumped directly from vapor-tight lease stock tanks. In no case did the oil go through any intermediate gathering station tanks. The average gravity of the crude used was 37.4 degrees A. P. I., and had an average gasoline and naphtha content of 29 per cent, by the Bureau of Mines, Hempel method.

"The comparative tests were started in January, 1924, and extended until January of the next year. The results of the tests, therefore, apply to aver-

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age conditions throughout the year. Samples of the oil were taken monthly, and the tanks were gauged at similar intervals. Throughout the summer and fall months recording thermometers were used on each tank to record the vapor temperatures. Temperatures of the oil were also observed at regular intervals.

"Figure 1 shows the average rate of evaporation loss from each tank over a period of one year.

"Figure 2 shows the average rate of evaporation loss from each tank over a six-month period including the summer months.

"Table 3 gives a summary of the results of this test.

"A comparison of the two charts shows that the total losses for the year from the black, red and gray tanks were less than twice the total losses for the six-month period. The reason is that the six-month period included the hottest months of the year. In the case of the aluminum tank the total losses for the year were more than twice the total losses for the six-month period as the evaporation loss amounted to 1.19 barrels per day during the summer months and as compared to an average loss of 1.22 barrels per day for the year. The discrepancy is due to the fact that the roof and part of the side of this tank were covered with oil when a lead line on a nearby flow tank broke. The oil was not cleaned off completely for several weeks. Therefore the tank was almost black during a part of the test.

"Figure 3 shows the recorded maximum daily vapor temperature for a period of three weeks during August. This period was selected because it most nearly illustrates average temperature condition during the summer months of this test. Figure 4 shows the daily difference between the maximum and minimum vapor temperatures recorded for the same period. Unfortunately these charts do not show the comparative vapor temperatures that would be recorded on tanks situated in a tank farm or refinery removed from producing fields. The red, gray and aluminum tanks were located on leases that were being developed in the Burbank field.

"Therefore, during the hot summer months the tanks were coated with a thin film of dust. The dust was usually oily due to the large quantities of gas and oil vapor in the air and clung to the tank tenaciously. This condition had a tendency to reduce the heat reflecting properties of the colors and to place all of the tanks in the same class as to color. The effect of the dust was greatest on the gray and aluminum tanks. The dust was readily washed off by rains so it did not materially affect the results when the entire period of test is considered.

"A test as conducted on four tanks painted black, red, gray and aluminum. The results of the test clearly show

the value of light-colored paints for tanks containing gasoline or crude oil of high gasoline content. These results are believed to be conservative, and under slightly different conditions, the differences between the results obtained with the light and dark colored paints would doubtless be more marked.

"Although this test was not conducted primarily to determine the lasting qualities of the various tank paints, an inspection of the paint was made after the test and, as far as the writer could determine, the paints on all of the tanks were in about the same condition. This point is of material importance to the operator, for many consider that light paints do not have the wearing qualities of dark tank paints.

"These tests indicate that the saving with the light paint, approximately 200 barrels per year per 55,000-barrel tank, would warrant giving the tank one coat every year if necessary. In fact, the writer has been informed by several refiners that it is customary for them to give each of their gasoline tanks one color coat every spring, and that the saving in evaporation more than pays for the additional cost. The writer has noted several instances where light-colored paints have held up for several years without losing the original color.

Table 3—Results of comparative evaporation tests on four 55,000 barrels crude oil storage tanks, painted black, red, gray and aluminum, respectively.

Color tank—	Initial Gauge Barrels	Evaporation Loss 1 year Bbls.	Pct.	Loss in Gravity in one year °A. P. I.
Black	52,058	649	1.24	.6°
Red	53,294	609	1.14	.5
Gray	53,192	547	.99	.3
Aluminum	53,418	447	.83	.2

This investigation was conducted under the direction of the Bureau of Mines with the co-operation of the State of Oklahoma.

William T. Dacon of the St. Louis Surfacer and Paint Company helped the writer materially by furnishing the paint used in these tests.

The Phillips Petroleum Company actively co-operated in the field work by furnishing tanks, oil and labor for painting.

R. A. Cattell, superintendent; F. W. Lane, petroleum chemist, and H. C. Fowler, associate petroleum engineer of the Bartlesville station of the Bureau of Mines, assisted in the preparation of the report with valuable suggestions and criticisms. Miss Ruth Brown, draftsman of the Bartlesville station, prepared the drawings. I. N. Beall, H. M. Thorne and John Devine made the distillations and gravity determination.—Report of Investigations, Department of the Interior, Bureau of Mines.

E. G. Godard, manager of the Houston office of the Goulds Manufacturing Company, and Mrs. Godard, recently made an automobile trip to Jamestown, N. Y., to visit Mrs. Godard's parents, Mr. and Mrs. Wm. Bealer.

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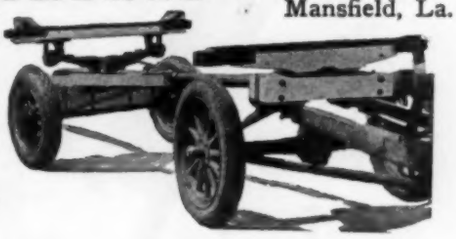

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Construction Started on Pipe Lines in Kansas

Eureka, Kan.—The Truman-Rayl Construction Company of Eldorado has signed a contract with the Sinclair Pipe Line Company to double a four-inch line from 18 miles north to this city.

This is the third contract received by the construction company recently, the others being a ten-mile line to be built for the White Eagle Oil & Refining Company, running from the Seeley pool northeast to the Kipfer property, and an 18-mile line in Russell County for the Derby Oil Company.

Mexican Withdrawals Drop

Tampico, Tamps.—Withdrawals of the Pan American Eastern during the week ending June 20, totalling 732,442 barrels were the smallest during any weekly period since early in January, 1925, and more than 100,000 barrels less than the week previous. This particularly true of heavy crude production of the Mexican Petroleum Corporation which averaged but 44,700 barrels daily. While the holdings of this company have been seriously affected by the intrusion of salt water within the past 10 days, particularly in well No. 1 Nendez, which suffered a decrease of 10,000 barrels a day, the production for the week ending June 20, was limited to commitments as it is estimated that the Mexican Petroleum Corporation has approximately 25,000 barrels a day reserve available if necessary.

Light oil withdrawals of 419,610 barrels were also less than during any weekly period this year when they have totaled as much as 593,370 barrels for seven days, but they likewise fail to reflect the true production of the company as it is estimated that the Huasteca Petroleum Company, which operates in the light oil district, has not less than 40,000 barrels a day additional closed in production.

Authorize 15 New Wells

Tampico, Tamps.—During the five days ending June 24, permits for the drilling of fifteen new wells were granted to nine companies by the Tampico Petroleum Agency of the Department of Industry, Commerce and Labor. The majority of the permits were for wells in Corcovado while other haciendas in which further operations will be carried on are: Cacalilao, Potrero del Recreo, Potrerillos, La Isleta, Chapacao, Limon, Paciencia and Panuco. Of the wells in Corcovado three will be started by the Mexican Gulf Oil Company and two by the Mexican Seaboard. The Marland Oil Company received permission for two additional wells in Limon, while the Transcontinental Petroleum Company (Standard of New Jersey) will be permitted to go ahead on two additional locations in Paciencia as a result of permits received by the Penn Mex Fuel Company for which it is operating this property. Others receiving permits were the East Coast Oil Company (Southern Pacific), Freeport Sulphur, National Railways, Empire Gas & Fuel Company and W. M. Turner.

Roxana Will Develop Arkansas River Island

Topeka, Kan.—The Roxana Petroleum Corporation was successful in procuring a lease on the islands of the Arkansas River adjacent to the Rainbow Bend field of Cowley County and the new well of the Gypsy Oil Company on the Hanson farm. The lease was taken from the State of Kansas and the island covers approximately 40 acres in the Arkansas River.

A bonus as well as the customary one-eighth royalty will be given the State of Kansas. The state executive council is now making arrangements for the leasing of river-bed land in the Arkansas River, and an extensive drilling campaign is anticipated in the near future.

Superior Oil Company Will Develop Richland Acreage

Los Angeles, Calif.—The Superior Oil Company has purchased 88 acres in proven territory in the Richfield field, and contemplates an immediate drilling program to develop the holdings, it is announced by officials of the company. The land is located on the east side of the field, and was formerly held by the General Petroleum Corporation which completed two wells on the property, and quitclaimed all the land except the two wells.

The development of a deep oil zone in this field by the Chiksan Oil Company, the Standard Oil Company and the Petroleum Midway Company has resulted in the extension of the proven limits of the field, and the Superior's new lease is considered practically proven by these operations. By the terms of the Superior's lease the first well must be started within 90 days, but it is officially reported that drilling will start in considerably less time.

The discovery of the Richfield deep zone has greatly stimulated operations in that district. The Chiksan and Petroleum Midway companies already have two wells producing from this sand, and the Standard's Kraemer well is making over 1000 barrels per day from the same zone. All of these companies are increasing their operations, and other companies are negotiating for acreage near the proven limits of the shallow zone.

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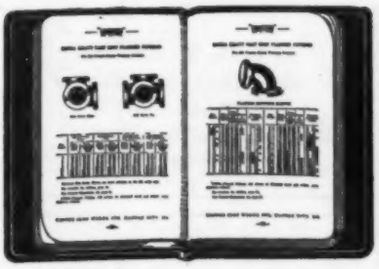
44 Pearl St. Boston, Mass.

Rainy Season Retards New Work in Tampico District

Tampico, Tamps.—The beginning of the rainy season which has virtually made the transportation of materials impossible because of the impassibility of the roads, has reflected in the lessening of the number of wells spudded in in the Tampico district. During the week ending June 20, but seven new wells were spudded in, the smallest number in any weekly period thus far in 1925. The new operations consist of a well each in Cacalilao and Paciencia for the Standard Oil Company of New Jersey; one each in Chapacao and Corcovado for the Mexican Gulf; one well for the Cosmos Oil Company in the latter mentioned hacienda; one for the Mexican Seaboard in Cacalilao and a well in Tulillo for the Mexican Petroleum Corporation.

During the week in question 12 wells were completed for an estimated initial production of 7200 barrels. Of this 6000 barrels is credited to the Mexican Petroleum Corporation for tis Chijol No. 30. This well when completed at 1833 feet, was estimated as being good for but 2000 barrels daily, but has subsequently increased until it is now a 6000 barrel producer.



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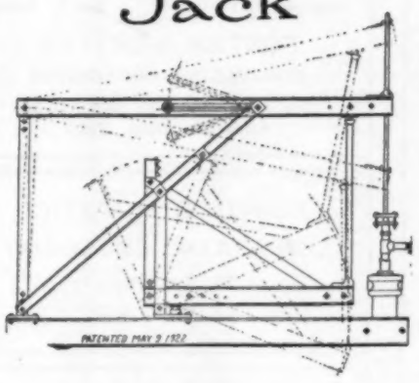

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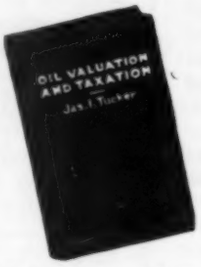

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Parkersburg, W. Va.

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Patents Obtained, Trade Marks, Patent Causes
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Formerly Assistant Examiner
Andrews, Streetman, Logue and Mobley
12th Floor Union N. Bk., Houston, Texas
United States Patent Office

DEWITT T. RING
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Armstrong Bldg. El Dorado, Ark.

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Geologist
2801 Main Street, Houston, Texas.
Telephone: Hadley 8839.

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304 American Exchange Nat. Bank Bldg.
DALLAS, TEXAS
Telephone: X-2738

No Quake Damage to Fields

Los Angeles, Calif.—As far as known the earthquake which did so much damage at Santa Barbara Monday morning did no damage to oil fields.

GUIDE FOR PURCHASERS

Accountants—
F. C. Lancton

Air Compressors—
Continental Supply Co.
Gardner Governor Co.
Hope Engineering & Supply Co.
Southern Engine and Pump Co.
Waukesha Motor Co.

Air Lift Pumping Equipment—
Gardner Governor Co.
Sullivan Machinery Co.

Asbestos Roofing—
Johns-Manville, Inc.

Attorneys
Hirsch & Hannay
Vinson, Elkins & Wood

Balls and Seats—
Continental Supply Co.
Norris Bros.
Northrup Equipment Company
The Charles N. Hough Mfg. Co.

Band Wheels—
Continental Supply Co.
Emsco Steel Products Co.
International Derrick & Equipment Co.
Lee C. Moore & Co., Inc.
Parkersburg Rig & Reel Co.

Bell Nipples—
The Cunningham Co.

Belting—
Bridgeport Machine Co.
Continental Supply Co.
Frick-Reid Supply Co.
Gustin Bacon Manufacturing Co.
International Supply Co.
Oil Well Supply Co.
Republic Supply Co.
Stanley Belting Corp.

Bit Steel—
Central Steel Co.

Black Diamonds—
R. S. Patrick

Boilers—
Bridgeport Machine Co.
The Brownell Co.
Continental Supply Co.
Frick-Reid Supply Co.
International Supply Co.
The National Supply Cos.
Oil Well Supply Co.
Republic Supply Co.
Regan Forge & Engineering Co.
Star Drilling Machine Co.
Titusville Iron Works Co.
United Iron Works, Inc.
See Oil Field Supplies and Tanks

Boiler Mountings—
The Lunkenheimer Company

Boiler Tubes—
The Tyler Tube & Pipe Co.

Blowout Preventer—
Baash-Ross Tool Co.
Cameron Iron Works
Continental Supply Co.
Regan Forge & Engineering Co.

Burners—
Continental Supply Co.
Gaso Pump & Burner Mfg. Co.
Gould Burner Co.
Regan Forge & Engineering Co.

Bull Wheels—
Continental Supply Co.
International Derrick & Equipment Co.
Lee C. Moore & Co., Inc.
Parkersburg Rig & Reel Co.

Calf Wheels—
Continental Supply Co.
International Derrick & Equipment Co.
Lee C. Moore & Co., Inc.
Parkersburg Rig & Reel Co.

Carbon and Bortz—
R. S. Patrick

Casing—
Continental Supply Co.
Regan Forge & Engineering Co.
Republic Supply Co.
Superior Tube Co.

Casing Shoes—
Baker Casing Shoe Co.
Bridgeport Machine Co.
Continental Supply Co.
The National Supply Cos.
Pelican Well Tool & Supply Co.
Regan Forge & Engineering Co.
Republic Supply Co.

Cement Hardener—
The Sullivan Co.

Cement Head—
MacClatchie Mfg. Co.

Chain—
Chain Belt Co.

Chain Blocks—
Yale & Towne Mfg. Co.

Charcoal Iron Boiler Tubes—
The Tyler Tube & Pipe Co.

Chemicals—
Ward Chemical Co.

Collapsible Rotary Bits—
O. M. Carter

Control Heads—
Continental Supply Co.
Southern Brass Mfg. & Plating Co.

Conservation—
Westcott and Greis

Core Drills—
O. M. Carter
Elliott Core Drilling Co.
Spengler Core Drilling Co.

Compressors—
Butler Mfg. Co.
Continental Supply Co.
Gardner Governor Co.
Hope Engineering & Supply Co.
Sullivan Machinery Co.
United Iron Works, Inc.

Cordage—
Continental Supply Co.
The National Supply Cos.
Republic Supply Co.

Crown Blocks—
Baash-Ross Tool Co.
Continental Supply Co.
International Derrick & Equipment Co.
Lufkin Foundry & Machine Co.
Oil Well Supply Co.
Parkersburg Rig & Reel Co.
Superior Tube Co.

Couplings—
Continental Supply Co.
Harrisburg Pipe & Pipe Bending Co.
Superior Tube Company

Cocks Drain—
The Lunkenheimer Company

Dehydrating Processes—
Wm. S. Barnickel Co.
Petroleum Rectifying Co.

Derricks and Rigs—
International Derrick & Equipment Co.
Lee C. Moore & Co.
National Turnbuckle Derrick Co.
Parkersburg Rig & Reel Co.
Peden Iron & Steel Co.
Robertson-McDonald Lumber Co.
Superior Tube Company

Diamond, Black—
R. S. Patrick

Diamond Core Drills—
R. S. Patrick
Sullivan Machinery Co.

Diamond Drilling Carbon—
R. S. Patrick

Disc Bits—
Continental Supply Co.

Diesel Engines—
McIntosh & Seymour Corp.

Ditchers—
Buckeye Traction Ditcher Co.

Draw Works—
Continental Supply Co.
Lufkin Foundry & Machine Co.

Drilling Cables—
American Cable Co.
Bridgeport Machine Co.
Continental Supply Co.
Frick-Reid Supply Co.
The National Supply Cos.
Peden Iron & Steel Co.
Regan Forge & Engineering Co.
Republic Supply Co.
Star Drilling Machine Co.
Wickwire Spencer Steel Corp.

Drill Pipe Slips—
Baash-Ross Tool Co.
Continental Supply Co.

Drilling Machines—
Bridgeport Machine Co.
Continental Supply Co.
Parkersburg Rig & Reel Co.
Star Drilling Machine Co.

Drill Collars—
Baash-Ross Tool Co.
Continental Supply Co.

Drill Pipe Cutting—
Baash-Ross Tool Co.
Houston Engineers, Inc.

Drilling Tools—
Acme Fishing Tool Co.
Baash-Ross Tool Co.
Continental Supply Co.

Drilling, Diamonds for—
R. S. Patrick

Drill Pipe—
Continental Supply Co.
Frick-Reid Supply Co.
Republic Supply Co.
Reading Iron Co.

Drilling Equipment—
Baash-Ross Tool Co.
Bridgeport Machine Co.
Continental Supply Co.
Republic Supply Co.
Star Drilling Machine Co.

Drive Pipe—
Continental Supply Co.
Republic Supply Co.
Reading Iron Co.
Superior Tube Company

Electrical Equipment—
General Electric Co.
Westinghouse Elec. & Mfg. Co.

Elevators—
Bridgeport Machine Co.
Continental Supply Co.
The Cunningham Co.
Dunn Mfg. Co.
LeBus Rotary Tool Works
Wilson & Willard Mfg. Co.

Electric Equipment—
General Electric Company

Engines, Diesel—
Western Machinery Co.

Engines, Gas—
Bruce-Macbeth Engine Co.
Climax Engineering Co.
Continental Supply Co.
Frick-Reid Supply Co.
Hope Engineering & Supply Co.
Spence Machine Co.
The Pattin Bros. Co.
Waukesha Motor Company
Western Machinery Co.

Engines (Gasoline or kerosene—
Climax Engineering Co.
Waukesha Motor Co.

Engines, Oil—
Continental Supply Co.
Frick-Reid Supply Co.
The Patin Bros. Co.
Western Machinery Co.

Engines Pumping—
Ajax Iron Works
Bessemer Gas Engine Co.
Bridgeport Machine Co.
Climax Engineering Co.
Continental Supply Co.
The Brownell Co.
De La Vergne Machine Co.
Franklin Valveless Engine Co.
Frick-Reid Supply Co.
Hope Engineering Co.
Lucey Mfg. Corp.
Lufkin Foundry & Machine Co.
The National Supply Cos.
National Transit Pump & Machine Co.
Oil Well Supply Co.
Peden Iron & Steel Co.
Republic Supply Co.
Rock Island Plow Co.
Spence Machine Co.
Southern Engine & Pump Co.
Titusville Iron Works
Waukesha Motor Company
Western Machinery Co.

Engineers—
David Donoghue
Foster & Reiter
Hope Engineering & Supply Co.
Lee C. Moore & Co.
Oil Conservation Engineering Co.
D. T. Ring
Westcott and Greis

Fire Protection—
Continental Supply Co.
Oil Conservation Engineering Co.

Fish Tail Bits—
Continental Supply Co.
Frick-Reid Supply Co.
Lucey Manufacturing Corp.
Pelican Well Tool & Supply Co.
Regan Forge & Engineering Co.

Floor Circle Brace—
Continental Supply Co.
Dunn Mfg. Co.

Fuel Oil—
Gulf Refining Co.
Sinclair Refining Co.

Gasoline Extraction Compressors—
Continental Supply Co.
Bessemer Gas Engine Co.
Hope Engineering & Supply Co.
Sullivan Machinery Co.

Gauge Cocks—
The Lunkenheimer Company

Gauges—
Continental Supply Co.
Oil Conservation Engineering Co.
Westcott and Greis

Gas Engines—
C. F. Camp Co.
S. M. Jones Co.
Waukesha Motor Co.

Gas Generators—
Baird Supply Co.

Gas Traps—
American Tank Co.
Continental Supply Co.
Lorraine Corp.
Smith Separator Co.
Trumble Gas Trap Co.

Gasoline and Oil Storage Tanks—
American Tank Co.
Butler Mfg. Co.
Continental Supply Co.
Kansas City Struct. Steel Co.
Parkersburg Rig & Reel Co.
Petroleum Iron Works Co., The

Genuine Wrought Iron Casing—
Reading Iron Co.

Geologists—
Joseph L. Adler
Alexander Deussen
David Donoghue
Edwin B. Hopkins
Foster & Reiter
Heath M. Robinson
Price, W. Armstrong

Governors—
Gardner Governor Co.

Grips and Clamps—
Continental Supply Co.
J. P. Ratigan

Heat Exchangers—
Brown Welding & Machine Co.
Hope Engineering & Supply Co.

Hoists—
Emsco Steel Products Co.

Hose—
Continental Supply Co.
Gustin Bacon Manufacturing Co.

Houses—
Crain Ready-Cut House Co.

Iron Casing—
Superior Tube Company

Laboratory Equipment—
Continental Supply Co.
Fort Worth Laboratories

Lapwelded Steel Boiler Tubes—
The Tyler Tube & Pipe Co.

Lighting Systems—
Bridgeport Machine Co.
Continental Supply Co.
General Electric Co.
Westinghouse Elec. & Mfg. Co.

Line Pipe—
Continental Supply Co.
Republic Supply Co.
Reading Iron Co.

Lumber—
Robertson-McDonald Lumber Co.

Lubricators—
Thes Lunkenheimer Company

Manufacturers—
Robinson Packer Co.

Maps—
Heydrick Mapping Co.

Meters—
Continental Supply Co.
Westcott and Greis

Motors—
General Electric Co.
Twin City Co.
Westinghouse Elec. & Mfg. Co.

Oiling Devices—
The Lunkenheimer Company

Oil Engines—
McIntosh & Seymour Corp.

Oil Field Equipment—
H. Rickman

Oil Field Supplies—
American Tank Co.
Bridgeport Machine Co.
Butler Mfg. Co.
Continental Supply Co.
The Cunningham Co.
C. C. Fetty
Frick-Reid Supply Co.
Graver Corp.
Erle P. Halliburton
Jarecki Mfg. Company
International Supply Co.
Kansas City Struct. Steel Co.
Lee C. Moore & Co.
Lucey Manufacturing Corp.
The Lunkenheimer Company
The National Supply Cos.
Oil Well Supply Co.
Parkersburg Rig & Reel Co.
Peden Iron & Steel Co.
Pelican Well Tool & Supply Co.
Petroleum Iron Works Co., The
Republic Supply Co.
Regan Forge & Engineering Co.
Robinson Packer Co.
Smith Separator Co.
Southern Brass Mfg. & Plating Co.
Superior Tube Co.
United Iron Works, Inc.
J. H. Williams & Co.

Oil Well Casing—
Continental Supply Co.
Frick-Reid Supply Co.
Republic Supply Co.
Superior Tube Company

Oil Well Cementing—
Erle P. Halliburton

Oil Well Shooting—
Eastern Torpedo Company
U. S. Torpedo Co.
Zero Hour Torpedo Co.

Overshoots—
Baash-Ross Tool Co.
Continental Supply Co.
LeBus Rotary Tool Works

Packers—
Continental Supply Co.
The Guiberson Corp.
Layne & Bowler
Robinson Packer Co.
Pelican Well Tool & Supply Co.
Regan Forge & Engineering Co.

Packing—
Continental Supply Co.
D. F. Connolly Agency
Gustin Bacon Manufacturing Co.
Firck-Reid Supply Co.
The National Supply Cos.
Peden Iron & Steel Co.
Pelican Well Tool & Supply Co.
Republic Supply Co.

Paints—
Continental Supply Co.
Peden Iron & Steel Co.

Panel Boards—
General Electric Co.
Westinghouse Elec. & Mfg. Co.

Pipe—
A. M. Byers Co.
Continental Supply Co.
Frick-Reid Supply Co.
Harrisburg Pipe & Pipe Bending Co.
International Supply Co.
The National Supply Cos.
Oil Well Supply Co.
Peden Iron & Steel Co.
Reading Iron Co.
Republic Supply Co.
Superior Tube Company

Patents—
Hardway & Cathey
Jack A. Schley
Jesse R. Stone

Pipe Grips—
Continental Supply Co.

Pipe Insulation—
Johns-Manville, Inc.

Pipe Screwing Machines—
Buckeye Traction Ditcher Co.

Pipe Threading Machines—
Jarecki Mfg. Company
Standard Engineering Co.

Pipe Vises—
J. H. Williams & Co.

Pipe Wrenches—
Continental Supply Co.
Dunn Mfg. Co.
The Guiberson Corp.
Trimont Mfg. Co.
LeBus Rotary Tool Works
Republic Supply Co.
J. H. Williams & Co.
Wickwire Spencer Steel Corp.

Portable Buildings—
Butler Manufacturing Co.
International Derrick & Equipment Co.

Portable Drilling Rigs—
Bridgeport Machinery Co.
Continental Supply Co.
Lee C. Moore & Co.
Parkersburg Rig & Reel Co.
The National Supply Cos.
Waukesha Motor Co.

Pulleys—
Continental Supply Co.
International Derrick & Equipment Co.
Lee C. Moore & Co., Inc.

Pulling Machines—
Clark Machine Co.
Continental Supply Co.
Iron King Mfg. Co.

Pumps—
Axelson Machine Co.
Continental Supply Co.
D. & B. Pump & Sup. Co.
C. C. Fetty
Frick-Reid Supply Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Goulds Manufacturing Co.
Jarecki Mfg. Company
Lucey Manufacturing Corp.
National Transit Pump & Machine Co.
Northrup Equipment Company
Oil Well Supply Co.
Pelican Well Tool & Supply Co.
Republic Supply Co.
Southern Engine & Pump Co.
Texas Oil Pump Co.
United Iron Works, Inc.
Waukesha Motor Co.

Portable Compressors—
Continental Supply Co.
Sullivan Machinery Co.

Pumping Engines—
C. F. Camp Co.
McIntosh & Seymour Corp.

Pumping Equipment—
General Electric Company
Northrup Equipment Company
Shaffer Specialty Co.

Pumping Powers—
Continental Supply Co.
C. C. Fetty
Frick-Reid Supply Co.
International Supply Co.
Jarecki Mfg. Company
Jensen Bros. Mfg. Co.
Spence Machine Co.

Regulators—
Westcott and Greis

Refined Products—
Gulf Refining Co.
Humble Oil & Refining Co.
Magnolia Petroleum Co.
Sinclair Refining Co.
Texas Co.

Recorders—
Fort Worth Laboratories

Refinery Equipment—
American Tank Co.
Butler Mfg. Co.
Continental Supply Co.
Oil Conservation Engineering Co.
Petroleum Iron Works Co., The
Republic Supply Co.
Smith Separator Co.
Titusville Iron Works
United Iron Works, Inc.
Westcott and Greis
Wyatt Metal & Boiler Works

Rig Irons—
Bradford Rig & Reel Co
Continental Supply Co.
International Supply Co.
Lee C. Moore & Co.
Oil Well Supply Co
Parkersburg Rig & Reel Co.
Republic Supply Co.

Rod and Tubing Protectors—
H. Rickman

Rotaries—
International Supply Co.

Rotary Rock Bits—
Continental Supply Co.
Hughes Tool Co.
Reed Roller Bit Co.

GUIDE FOR PURCHASERS—Continued

Rotary Fish Tail Bits—
Continental Supply Co.
Pelican Well Tool & Supply Co.
Regan Forge & Engineering Co.
Republic Supply Co.

Safety Casing Clamps—
Shaffer Specialty Co.

Sand Reel Supports—
Shaffer Specialty Co.

Separators—
American Tank Co.
Butler Mfg. Co.
Continental Supply Co.
Lorraine Corp.
Smith Separator Co.
Trumble Gas Traps

Specialty Manufacturers—
Shaffer Specialty Co.

Steel Bull Wheels —
Bradford Rig & Reel Co.
McIntosh & Seymour Corp.

Structural Steel—
Butler Mfg. Co.
United Iron Works, Inc.

Steel Derricks—
Continental Supply Co.
Emsco Steel Products Co.
International Derrick & Equipment Co.
Lee C. Moore & Co., Inc.
Parkersburg Rig & Reel Co.
Superior Tube Company

Steel Crown Blocks—
Continental Supply Co.
International Derrick & Equipment Co.
Lee C. Moore & Co., Inc.
Parkersburg Rig & Reel Co.
Superior Tube Co.

Steel Storage Tanks—
American Tank Co.
Butler Mfg. Co.
Continental Supply Co.
Petroleum Iron Works Co., The

Still Covering—
Johns-Manville, Inc.

Strainers—
Continental Supply Co.
Emsco Steel Products Co.
Howard Smith Company
Layne & Bowler Co.
J. H. McEvoy & Co.
Pelican Well Tool & Supply Co.

Stuffing Boxes—
A. W. Fawcett

Special Steels—
Central Steel Co.

Steel Tanks—
Bradford Rig & Reel Co.

Sucker Rod Lines—
Continental Supply Co.

Sucker Rod Elevators—
The Cunningham Co.

Sucker Rod Hangers—
Lorraine Corp.

Sucker Rod Guides—
H. Rickman

Sucker Rod Hooks—
The Cunningham Co.

Sucker Rod Sockets—
Baird Supply Co.
Brown Welding & Machine Co.
Continental Supply Co.
The Cunningham Co.
Shaffer Specialty Co.
Western Supply Co.

Sucker Rods—
Axelson Machine Co.
Continental Supply Co.
Columbus Sucker Rod Co.
D. & B. Pump & Sup. Co.
Dunn Mfg. Co.
Frick-Reid Supply Co.
S. M. Jones Co.
The National Supply Cos.
Oil Well Supply Co.
J. P. Ratigan
Republic Supply Co.

Swabs—
Continental Supply Co.
The Cunningham Co.
Shaffer Specialty Co.

Tank Bolts—
Continental Supply Co.

Tanks—
American Tank Co.
Butler Mfg. Co.
Black, Sivalls & Bryson
Continental Supply Co.
The Brownell Co.
Kansas City Struct. Steel Co.
Maloney Tank Co.
Parkersburg Rig & Reel Co.
Petroleum Iron Works Co., The
United Iron Works
Wyatt Metal & Boiler Works

Tank Deadwood—
Robertson-McDonald Lumber Co.

Tank Equipment—
Continental Supply Co.
Johns-Manville, Inc.
Oil Conservation Engineering Co.
Parkersburg Rig & Reel Co.
Westcott and Greis

Tank Insulation—
Johns-Manville, Inc.

Tank Roofs—
Johns-Manville, Inc.

Temper Screws—
Burns Tool Co.

Thermometers—
Continental Supply Co.
Fort Worth Laboratories

Timbers—
Robertson-McDonald Lumber Co.

Tongs—
Bridgeport Machine Co.
Continental Supply Co.
Dunn Mfg. Co.
Guiberson Corp.
Howard Smith Company
LeBus Rotary Tool Works
Pelican Well Tool & Supply Co.
J. H. Williams & Co.
Wilson & Willard Mfg. Co.

Tool Joints—
Baash-Ross Tool Co.
Bridgeport Machine Co.
Continental Supply Co.
Emsco Steel Products Co.
Hughes Tool Co.
Pelican Well Tool & Sup. Co.
Regan Forge & Engineering Co.
Republic Supply Co.

Tools (Fishing and Drilling)—
Acme Fishing Tool Co.
Bridgeport Machine Co.
Brown Welding & Machine Co.
Continental Supply Co.
Frick-Reid Supply Co.
Houston Engineers, Inc.
Hughes Tool Co.
International Supply Co.
Oil Well Supply Co.
Peden Iron & Steel Co.
Pelican Well Tool & Supply Co.
Regan Forge & Engineering Co.
Republic Supply Co.
Star Drilling Machine Co.
Sullivan Machinery Co.
Western Supply Co.

Toothless Slips—
Le Bus Rotary Tool Works

Tractor Winch—
Rock Island Plow Co.
Twin City Co.

Traveling Blocks—
Baash-Ross Tool Co.
Contniental Supply Co.
Lufkin Foundry & Machine Co.
Regan Forge & Engineering Co.

Tret-O-Lite—
W. S. Barnickel & Co.

Tubing Catcher—
Continental Supply Co.
Dunn Mfg. Corp.
Guiberson Corp.

Tubing Lines—
Continental Supply Co.

Tubing—
Continental Supply Co.
Republic Supply Co.
Reading Iron Co.

Underreamers—
Bridgeport Machine Co.
Continental Supply Co.
Wilson & Willard Mfg. Co.

Vacuum Pumps—
Continental Supply Co.
Sullivan Machinery Co.

Valves—
Bradford Motor Works
Continental Supply Co.
Darling Valve & Mfg. Co.
The Charles N. Hough Mfg. Co.
Ludlow Valve Mfg. Co.
The Lunkenheimer Company
Norris Bros.
Northrup Equipment Company
Oil Conservation Engineering Co.
The Wm. Powell Co.
Smith Separator Co.
Sour Lake Machine Co.
Southren Brass Mfg. & Plating Co.
Texas Oil Pump Co.
Westcott Valve Mfg. Co.

Valves, Gate—
The Lunkenheimer Company

Valves and Fittings—
Continental Supply Co.
Darling Valve & Mfg. Co.
D. & B. Pump & Supply Co.
Jarecki Mfg. Company
Ludlow Valve Mfg. Co.
Lufkin Foundry & Machine Co.
The Lunkenheimer Co.
The National Supply Cos.
Peden Iron & Steel Co.
The Wm. Powell Co.
Pittsburgh Reinforced Brazing & Machine Co.
Republic Supply Co.
United Iron Works

Vapor Tight Insulated Tank Tops—
Johns-Manville, Inc.

Walking Beams—
Continental Supply Co.
International Derrick & Equipment Co.
Lee C. Moore & Co., Inc.

Welding and Cutting Equipment—
Continental Supply Co.

Working Barrels—
Axelson Machine Co.
Continental Supply Co.
D. & B. Pump & Sup. Co.
Howard Smith Company
Northrup Engineering Company
Republic Supply Co.
The Charles N. Hough Mfg. Co.
Southern Brass Mfg. & Plating Co.
Texas Oil Pump Co.

Water Gauges—
Continental Supply Co.
J. E. Shaffer Company
Smith Separator Company

Water Cans—
Continental Supply Co.
H. P. Gott Mfg. Co.

Water Softening Compound—
Ward Chemical Company

Wire Rope—
American Cable Co.
Bridgeport Machine Co.
Continental Supply Co.
International Supply Co.
Regan Forge & Engineering Co.
Republic Supply Co.
The National Supply Cos.
Wickwire Spencer Steel Corp.
Western Supply Co.

Wire Rope Fittings—
American Cable Co.

Wire Rope Slings—
American Cable Co.

Books on Petroleum

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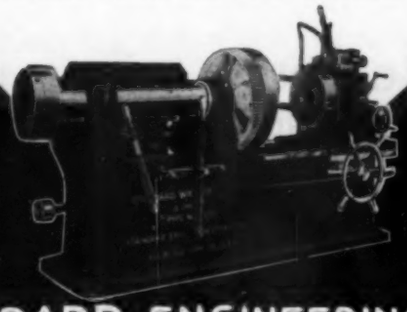

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